FAA Safety BRIEFING

September/October 2014

Your source for general aviation news and information

Student Pilot Guide, Part II

Finding the Right School: Part 61 vs. Part 141 9

Wanted: The Perfect Flight Instructor 14

Make Your Postflight a Priority! 24

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FAA Safety Briefing is the FAA safety policy voice of non-commercial general aviation.

The September/October 2014 issue of *FAA Safety Briefing* focuses on the world of student pilots and airmen-in-training. As a continuation to our last student pilot-themed edition in 2012, this issue explores additional tips and resources to help provide a successful path to initial pilot certification, as well as provide a refresher to those more experienced aviators.

Cover:
Our cover is a tribute to the long-standing tradition of cutting and displaying a student's shirt tail after a successful solo flight. The tradition harkens back to the days of tandem trainers, where instructors, seated behind their student, would tug on their student's shirt tail to get their attention. Removing the shirt tail is thus regarded as a sign of an instructor's confidence in the student's flying abilities.

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JOHN DUNCAN
DIRECTOR, FLIGHT STANDARDS SERVICE

Always a Student

You might remember that when I closed this column in the last issue of *FAA Safety Briefing*, I was in the final stages of acquiring a light sport aircraft (LSA). I'm very happy to report that the deal was sealed and the deed is done: I am now the proud owner of a bright yellow Titan *Tornado*. And yes, my *Cherokee* has been very kind to the new family member. She graciously made space in the hangar, and so far the two planes seem to be getting along.

Training Time

My new aeronautical acquisition was in Colorado, and I was eager to board the next Denver-bound airliner to take possession and fly her home.

Not so fast. The first task was to get some structured training in this particular make and model of LSA. I've been flying for most of my life, and I've been fortunate to pilot a number of different aircraft. Some of my non-flying friends were thus surprised that I felt the need for *Tornado*-specific training — after all, "it's just another airplane, right?" Well ... not quite.

If you read the March/April 2014 issue of this magazine, you might recall the "Shifting Gears" article on tips for tackling transition training. Let me quote a few key points:

> When we think about transition, pilots often focus more on what we perceive as moving "up" in the aircraft taxonomy. With more capable aircraft, we naturally expect to invest considerable time and effort to master the machine by understanding its avionics, its systems, its performance, and its handling characteristics.
>
> To assume that moving "down" is always less demanding is every bit as inaccurate — and dangerous — as responding to the intuitive sense of up and down that can lead pilots to mishandle an aerodynamic stall. Any pilot who has transitioned from a standard category airplane to a light sport aircraft (LSA) will attest to the very real challenges involved in moving to a lower-performance airplane.
>
> Whether moving to a more capable aircraft or to a simpler machine, every bird we fly deserves, and indeed demands, the utmost level of respect from its pilot.

Every pilot is always a student, so I tacked a couple of vacation days to the end of a business trip and spent several very enjoyable hours flying a *Tornado* with an instructor in Ohio. My previous aeronautical experience was helpful, but I learned a lot from the *Tornado*-specific training sessions.

The Glow of Flying Low and Slow

Training completed, I headed to Denver to fly my *Tornado* home to Virginia. What a journey! It was wonderful to reconnect with grass-roots aviation. I loved flying low and slow with a very basically equipped airplane (but yes, my iPad aviation apps were extremely helpful). I loved chatting with my fellow aviators at the many friendly and welcoming GA airports along the way. We are indeed fortunate to have such a rich, varied, and vibrant tapestry of aviation infrastructure in this county. And, finally, the long cross-country journey gave me a great opportunity to get well acquainted with the characteristics and quirks of my new airplane.

It was wonderful to get back to real grass-roots aviation.

Whether you are a longtime pilot or someone just starting out in the wonderful world of aviation, I hope you'll enjoy the articles and tips in this student-pilot focused issue of *FAA Safety Briefing*. After all, we are all lifelong students of aviation. Welcome to our world!

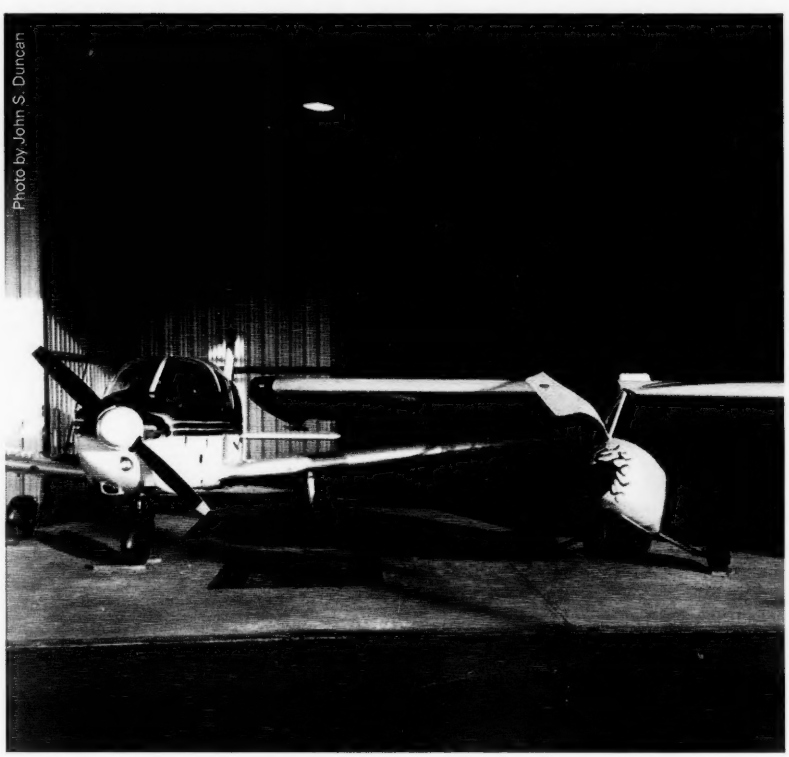


Photo by John S. Duncan

Unleaded Avgas Program Running on All Cylinders

In July, the FAA received nine replacement fuel proposals for further evaluation in the Piston Aviation Fuels Initiative (PAFI), which is an industry-government initiative designed to help the GA industry transition to an unleaded aviation gasoline. The FAA is assessing the viability of the candidate fuels to determine what fuels will be part of the first phase of laboratory testing at the FAA's William J. Hughes Technical Center starting in September. The goal is for government and industry to work together to have a new unleaded general aviation fuel by 2018.

"We're committed to getting harmful lead out of general aviation fuel," said Transportation Secretary Anthony Foxx. "This work will benefit the environment and provide a safe and available fuel for our general aviation community."

There are approximately 167,000 GA aircraft in the United States that rely on 100 low lead aviation gasoline for safe operation. It is the only remaining transportation fuel in the U.S. that contains the addition of lead, a toxic substance, to create the very high octane levels needed for high-performance aircraft. Most commercial airplanes do not use leaded gas.

For more information, go to faa.gov/about/initiatives/avgas.

Two GA Surveys Underway

The data collection period for the 36th annual General Aviation and part 135 Activity Survey (GA Survey) for reporting on calendar year 2013 closes in mid-September. If you were selected to participate in this year's survey and received a postcard invitation in the mail, please make sure to complete the survey. Contact FAA's partner Tetra Tech with any questions at 800-826-1797 or email infoaviationsurvey@tetratech.com.

In addition, the FAA Safety Awareness, Feedback, and Evaluation (SAFE) program's general aviation pilot survey timeframe to receive comments will close Sept. 22. More than 2,000 general aviation pilots were randomly selected to respond to questions on a variety

Airplanes, Aerobatics, Aviation Safety and the Administrator

In a jam-packed week (27 July – 3 Aug) filled with homebuilt aircraft, vintage airplanes, light-sport aircraft, seaplanes and aerobatic aircraft of all shapes and sizes, this year's EAA AirVenture in Oshkosh Wisc., had something to delight every aviator.

With over 500,000 people in attendance and more than 10,000 aircraft on display, the fly-in made for a great opportunity to brush up on some aviation safety education and to learn a few new techniques. The FAA Safety Team (FAASTeam) and FAASTeam representatives offered over 50 hours of safety forums which attracted more than 6,100 participants. For those people who were unable to attend in person, online webinars made it possible for an additional 1,447 people to attend virtually and receive WINGS credit were applicable. Topics ranged from ADS-B to Weather Risk Management.

In addition, FAA Administrator Michael Huerta fielded a few questions from EAA Chairman Jack Pelton and from the audience in an hour long "meet the Administrator" session. In regards to general aviation, Administrator Huerta had this to say: "What you all represent in aviation is the fun. It's how we can have a great time connecting with families and with friends."

One of the many items Administrator Huerta also discussed was the Class III Medical proposed rulemaking which could allow certain pilots to fly without needing a Class III Medical. He acknowledged that the process had taken several crucial steps forward and that most of the "heavy lifting" has been accomplished.

"Aviation has always been about innovation," said Administrator Huerta. "It's been about collaboration, and you can't do any of that if what you are always getting is 'no.' The easiest thing to do would be to say 'no' but we're focused on how to get to 'yes.' We have heard your requests and we are responding."

of topics ranging from regulations, certification, safety, and training.

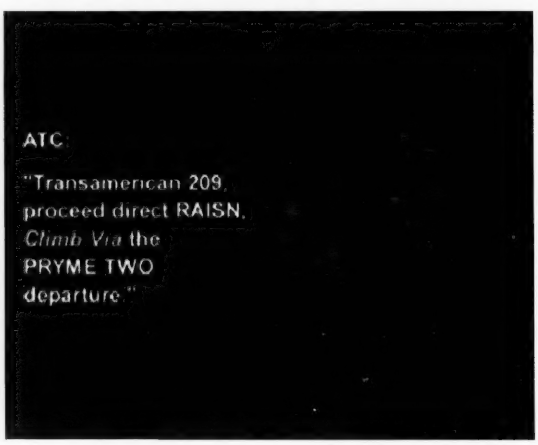
The SAFE program is one of the tools FAA's Flight Standards Service uses to keep current with aviation safety issues and concerns. It receives feedback from five external stakeholder groups within the aviation community, including GA pilots, aviation maintenance technicians (AMTs), commercial and ATP-rated pilots, repair station managers, and air carrier managers.

To learn more about the SAFE program, contact Edward Kleinschmidt at edward.kleinschmidt@faa.gov or 202-267-4265.

"Climb Via" Phraseology Training Available

In April, the FAA began using "climb via" phraseology for route transitions and/or the assignment of standard instrument departure (SID) and area navigation (RNAV) SID procedures containing speed and altitude restrictions. There has been confusion and several pilot deviations that have resulted in altitude busts since the change. Additional information has been developed to aid in pilot training:

- "Climb Via" Informational Video: http://1.usa.gov/1nkkRvK
- Climb Via, Descend Via, & Speed Clearances Frequently Asked Questions: http://1.usa.gov/1wFA5et
- Information for Operators (Climb Via, Descend Via, & Speed Clearances): http://1.usa.gov/1u0E0GT



Model Aircraft Guidance Updated

The FAA clarified the special rules for model aircraft in the FAA Modernization and Reform Act of 2012. The FAA also recently issued a notice to provide clear guidance to model operators on the "Dos" and "Don'ts" of flying safely in accordance with the Act and to answer many of the questions it has received regarding the scope and application of the rules.

See next page for details.

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CONTACT INFORMATION

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Hobby / Recreational Flying

What Can I Do With My Model Aircraft?

Having fun means flying safely! Hobby or recreational flying doesn't require FAA approval but you must follow safety guidelines. Any other use requires FAA authorization.

AVOID DOING ANYTHING HAZARDOUS TO OTHER AIRPLANES OR PEOPLE AND PROPERTY ON THE GROUND.

- ✔ **DO** fly a model aircraft/UAS at the local model aircraft club
- ✔ **DO** take lessons and learn to fly safely
- ✔ **DO** contact the airport or control tower when flying within 5 miles of the airport
- ✔ **DO** fly a model aircraft for personal enjoyment

- ⊘ **DON'T** fly near manned aircraft
- ⊘ **DON'T** fly beyond line of sight of the operator
- ⊘ **DON'T** fly an aircraft weighing more than 55 lbs unless it's certified by an aeromodelling community-based organization
- ⊘ **DON'T** fly contrary to your aero-modelling community-based safety guidelines
- ⊘ **DON'T** fly model aircraft for payment or commercial purposes

MODEL AIRCRAFT OPERATIONS LIMITS

According to the FAA Modernization and Reform Act of 2012 as (1) the aircraft is flown strictly for hobby or recreational use; (2) the aircraft is operated in accordance with a community-based set of safety guidelines and within the programming of a nationwide community-based organization; (3) the aircraft is limited to not more than 55 pounds unless otherwise certified through a design, construction, inspection, flight test, and operational safety program administered by a community-based organization; (4) the aircraft is operated in a manner that does not interfere with and gives way to any manned aircraft; (5) when flown within 5 miles of an airport, the operator of the aircraft provides the airport operator and the airport air traffic control tower...with prior notice of the operation; and (6) the aircraft is flown within visual line of sight of the operator.

For more information about safety training and guidelines, visit **www.modelaircraft.org**

For more information, visit
www.faa.gov/go/uas

Federal Aviation Administration

LEAVE THE ENGINE AT HOME

Learning to Slow Down in Non-Mechanized Aircraft

BY JAMES WILLIAMS

As we continue to discuss issues important to student pilots, you may be thinking that this edition isn't for you. But even if you are a veteran pilot, this issue is still intended for you. As John Duncan notes in the Jumpseat department, pilots at every level — including airline transport pilot (ATP) — are still "student" pilots because there is always so much more to learn about aviation. Learning new skills can be an excellent way of enhancing your old ones. And while many pilots may feel the "need for speed," slowing down can actually provide a better learning experience.

Allow me to explain.

The Art of Floating Gracefully

There are few things that look as simple and majestic as a balloon floating through the sky. But hidden behind that lighter-than-air beauty are plenty of lessons that can easily apply to other aspects of aviation. In fact, the skills required to earn your balloon rating are easily applicable to other ratings, as they require you to focus on specific areas that otherwise might be underestimated or overlooked.

For instance, learning to fly a balloon will put a whole new perspective on preflight planning. It makes you a lot more sensitive to environmental factors that you might otherwise ignore in an airplane. Suddenly things that were minor annoyances, like winds aloft, become major concerns that may cause you to radically rethink the flight plan.

You also have to be more adept at reading conditions during the flight. How close is your actual ground track matching your anticipated course? Are the winds as forecasted? Ironically, in an aircraft that travels at the speed of the air around it, you have to think way ahead relative to how you are accustomed to thinking in aircraft of the powered variety. That's chiefly due to the limited means available to control the balloon's course. Another key skill is the ability to be both precise and subtle in your control inputs. Too much or too little input could create a situation that would be difficult to reverse.

Soaring to the Next Level

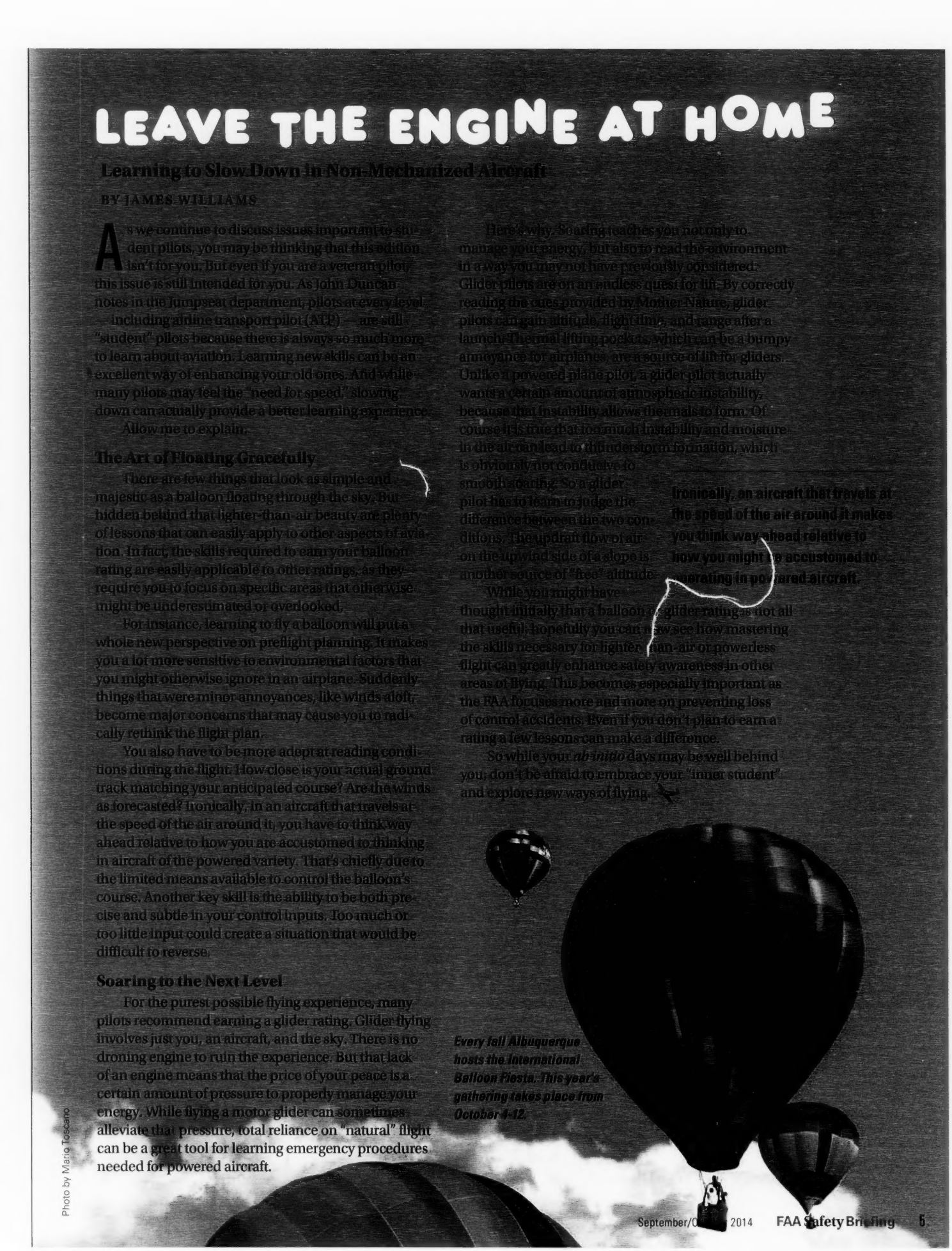
For the purest possible flying experience, many pilots recommend earning a glider rating. Glider flying involves just you, an aircraft, and the sky. There is no droning engine to ruin the experience. But that lack of an engine means that the price of your peace is a certain amount of pressure to properly manage your energy. While flying a motor glider can sometimes alleviate that pressure, total reliance on "natural" flight can be a great tool for learning emergency procedures needed for powered aircraft.

Here's why. Soaring teaches you not only to manage your energy, but also to read the environment in a way you may not have previously considered. Glider pilots are on an endless quest for lift. By correctly reading the cues provided by Mother Nature, glider pilots can gain altitude, flight time, and range after a launch. Thermal lifting pockets, which can be a bumpy annoyance for airplanes, are a source of lift for gliders. Unlike a powered plane pilot, a glider pilot actually wants a certain amount of atmospheric instability, because that instability allows the mails to form. Of course it is true that too much instability and moisture in the air can lead to thunderstorm formation, which is obviously not conducive to smooth soaring. So a glider pilot has to learn to judge the difference between the two conditions. The updraft flow of air on the upwind side of a slope is another source of "free" altitude.

Ironically, an aircraft that travels at the speed of the air around it makes you think way ahead relative to how you might be accustomed to operating in powered aircraft.

While you might have thought initially that a balloon or glider rating is not all that useful, hopefully you can now see how mastering the skills necessary for lighter-than-air or powerless flight can greatly enhance safety awareness in other areas of flying. This becomes especially important as the FAA focuses more and more on preventing loss of control accidents. Even if you don't plan to earn a rating a few lessons can make a difference.

So while your *ab initio* days may be well behind you, don't be afraid to embrace your "inner student" and explore new ways of flying.



Every fall Albuquerque hosts the International Balloon Fiesta. This year's gathering takes place from October 4-12.

Photo by Mario Toscano

Fast-track Your Medical Certificate

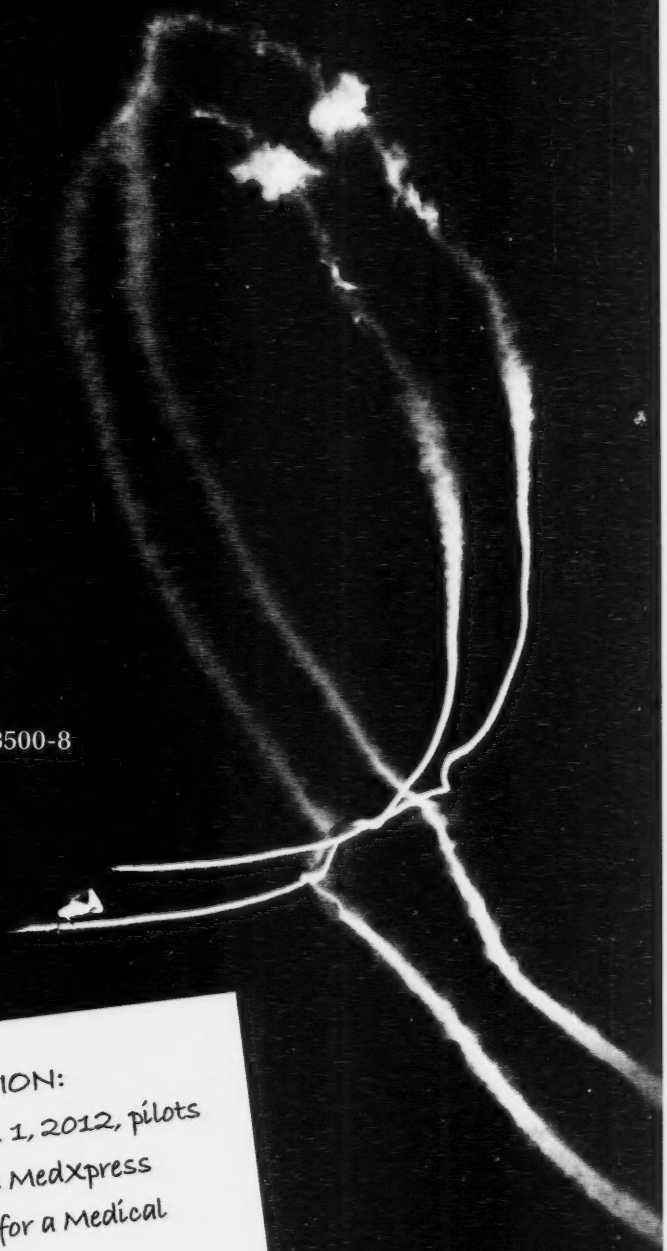
With FAA MedXPress, you can get your medical certificate faster than ever before.

Here's how: Before your appointment with your Aviation Medical Examiner (AME) simply go online to FAA MedXPress at https://medxpress.faa.gov/ and electronically complete FAA Form 8500-8. Information entered into MedXPress will be available to your AME to review prior to and at the time of your medical examination, if you provide a confirmation number.

With this online option you can complete FAA Form 8500-8 in the privacy and comfort of your home and submit it before your appointment.

The service is free and can be found at:

https://medxpress.faa.gov/



ATTENTION:
As of Oct. 1, 2012, pilots must use MedXpress to apply for a Medical certificate.

JAMES FRASER, M.D
FEDERAL AIR SURGEON

Are You SAFE?

That's the biggest question you need to remember before each flight. As the Federal Air Surgeon, the one thing I want you to remember is that medical certification is an ongoing process that doesn't end when you leave the Aviation Medical Examiner's office. Before every flight I recommend employing the IMSAFE check list.

Illness - Do I have any symptoms?

Medication - Have I been taking prescription or over the counter drugs?

Stress - Am I under any psychological pressure in any part of my life?

Alcohol - Have I been drinking within 8 hours? Within 24 hours?

Fatigue - Am I tired or not adequately rested?

Emotion - Am I emotionally upset?

The IMSAFE checklist should be a part of your effort to maintain continuous medical fitness, meaning that you continue to meet the standards in Title 14 Code of Federal Regulations (14 CFR) part 67 at all times. While most airmen would never intentionally fly without being able to meet these medical standards, you might be surprised by what could disqualify you. All of the IMSAFE elements are important, but I'd like to focus on one that is particularly challenging for us in the Office of Aerospace Medicine.

Medication

While it might seem self-evident that illnesses could be disqualifying, some airmen don't realize that some medications are equally disqualifying. In the previous issue, we discussed the insidious threat represented by diphenhydramine (common trade name Benadryl®) which can, either by itself or in combination with other medications, contribute to a surprising number of GA accidents. But by no means is diphenhydramine the only threat. One way of checking the status of a medication would be to consult your AME. Since that may not always be practical, there's another resource that even seasoned pilots may not know is available to them; The Guide for AMEs Do not Issue/Do not Fly list (www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/pharm/dni_dnf/).

This guide includes two lists intended for use by AMEs, but available to the public. The first list (Do not Issue) is a list of medications that require clearance from the FAA before the AME can issue a medical certificate. The second list (Do not Fly) includes medications that require the AME to *advise* airmen not to fly, and to provide additional safety information. If a medication appears on either of these lists, it should be cause for precautionary grounding until a safe period after stopping use, or after it becomes authorized by your AME or the FAA.

How Long Before It's Safe?

For most medications it is a good idea to multiply the dose interval by five. For example, if a medicine is taken every four to six hours, the waiting period would be 30 hours from the end of the last dose (5x6=30). This works for most cases because the dose interval aligns with the pharmacological half-life of the medication. In other cases, however, it does not. One of those cases is diphenhydramine, which has a waiting time of 60 hours. Another area where wait times can vary is with sleep aids. The waiting periods can be as low as six hours and as high as 72 hours, depending on the particular drug and the specific formulation (for more information: www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/pharm/sleepaids/). For example, zolpidem (common trade names Ambien®, Zolpimist, Edluar, etc.) can vary between 24 to 48 hours for the same basic drug.

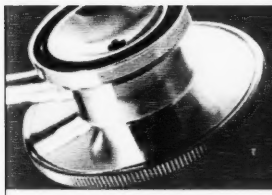
Looking to the Future

In addition to the IMSAFE Checklist and continuous medical fitness, I'd like to stress the importance of finding a good AME and building a solid relationship as you start your medical certification process. Some pilots will tell you to find an "easygoing" AME, but in the long term this can be a bad strategy. A good AME will work with you but make sure you still meet the medical standards. He or she will be there should you ever have to go through the special issuance process, whereas as an "easygoing" AME might not be as available. Also, feel free to visit the FAA Safety centers at events like Sun'n Fun or AirVenture, where members of the Office of Aerospace Medicine are available to discuss individual situations.

James Fraser received a B.A., M.D., and M.P.H. from the University of Oklahoma. He completed a thirty year Navy career and retired as a Captain (O6) in January 2004. He is certified in the specialties of Preventive Medicine (Aerospace Medicine) and Family Practice. He is a Fellow of the Aerospace Medical Association and the American Academy of Family Practice.

Learn More

www.faa.gov/other_visit/aviation_industry/designees_delegations/designee_types/ame/amcs/phonenumbers/



Ask Medical Certification

COURTNEY SCOTT, D.O.
MANAGER, AEROSPACE MEDICAL
CERTIFICATION DIVISION

Q1. I am an IDDM [Insulin-Dependent Diabetes Mellitus] in End Stage Renal failure. I am on hemodialysis treatment for nine hours, three days a week. Can I be reinstated to flying status? If not powered planes, how about gliders?

A1. The FAA will not grant a medical certificate to an airman with renal failure so severe that it requires hemodialysis. There are no medical requirements for gliders. However, I strongly caution you to fly with another qualified pilot who understands your situation. Your likelihood for sudden incapacitation is fairly high.

Q2. I'm a member of the Navy EOD [Explosive Ordinance Disposal] community and on my third deployment to Afghanistan. This winter I hit my head on the ice and had a concussion with three seizures within 12 hours after the head injury. I was med-evaced to Germany for a MRI and EEGs; all looked fairly good. The neurologist at Balboa Naval Medical Center expects me to make a full recovery. I hold commercial multi and single engine land instrument pilot privileges. I'm also a CFI-II and MEI. I haven't flown in about seven years because of the wars. I plan on getting out of the Navy this year, and I would love to get back in the cockpit. What testing/paperwork if any would the FAA need when I decide to start flying again?

A2. There is always a concern about seizures after a head injury. This may evolve into what is known as Post Traumatic Epilepsy. The current FAA policy for the circumstances you have described requires a minimum of two years' waiting time, seizure-free and off anti-seizure medications, before the case would be considered. There might be other considerations as well, but since I have no further specifics, I cannot comment.

Send your questions to SafetyBriefing@faa.gov. We'll forward them to the Aerospace Medical Certification Division without your name and publish the answer in an upcoming issue.

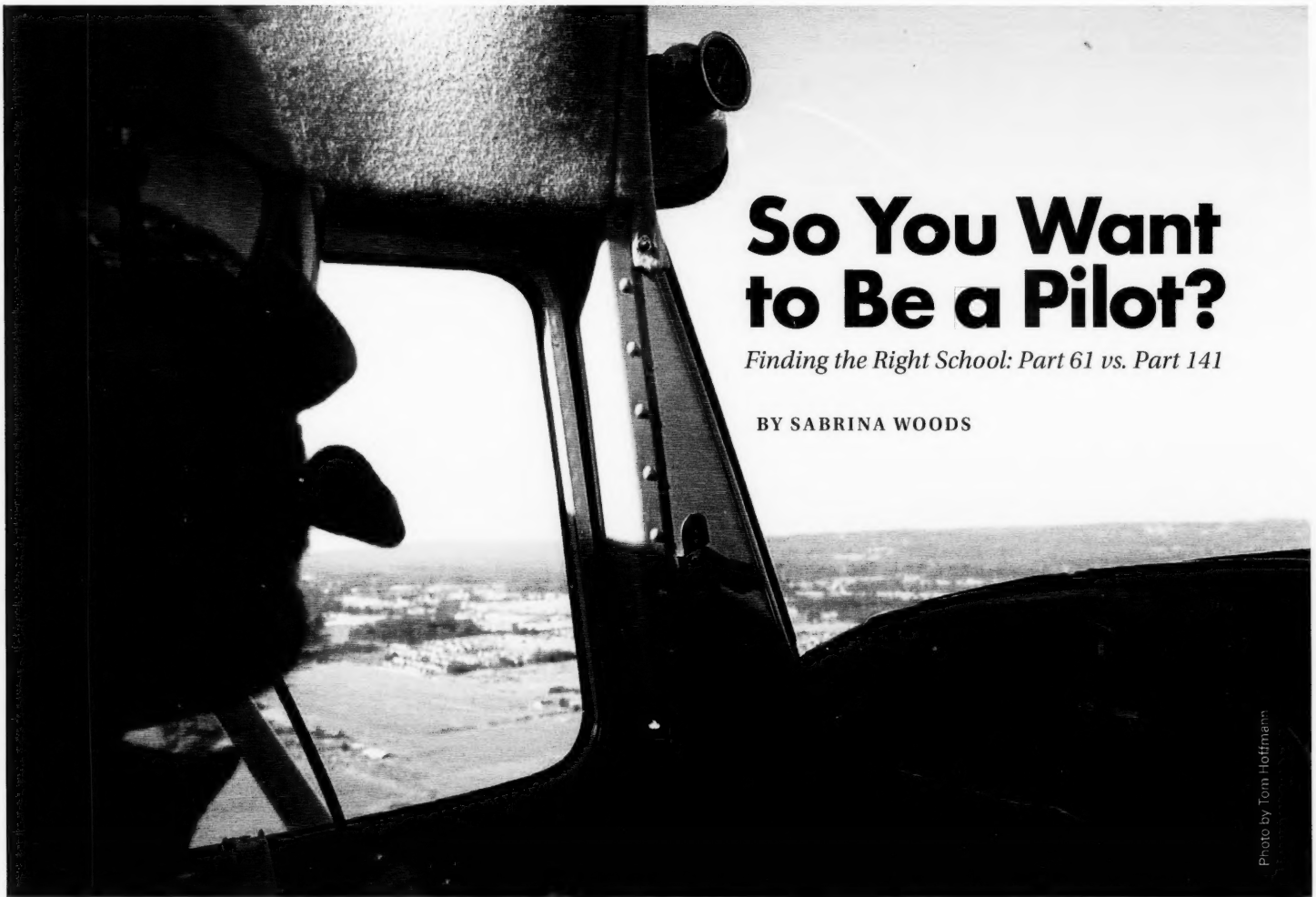
Q3. I had one stent put in, I did a stress test, etc., had all the info recorded and sent to the doctor I was going to have my third class physical with. I took the physical and was told that I did not pass due to the stent. Two months later, the FAA sends me a letter telling me that I need to have a different stress test. I just spent $2,000 to get the one stress test, which I passed with flying colors. I told the doctor doing it that we were going to submit it to the doctor doing the third class physical for the FAA. Then I find out I will have to spend another $2,000 to have it redone with a few changes, and then there is still no guarantee that they will approve it. The FAA is just pricing the average individual out of aviation. AOPA was not a big help either — I tried to get info from AOPA about the stent but did not get much advice.

A3. If an individual requires a stent, it is clear that Coronary Artery Disease (CAD) is present. Because of its propensity to be associated with sudden incapacitation, CAD is a specifically disqualifying condition. The Federal Air Surgeon has a number of cardiology consultants who provide advice and recommendations as to what an airman might provide to demonstrate good aeromedical disease management and allow an airman to fly, relatively safely, for the period of the certificate issued.

Typically, the easiest and least invasive screening test these consultants have recommended is a stress test performed to our minimum specifications. That would ordinarily mean at least nine minutes of exercise according to what is known as a Bruce Protocol, and the airman would need to achieve 100-percent of his or her maximum predicted heart rate. If this test is deemed positive, usually a myocardial perfusion scan would be the next step. This is another stress test which involves the use of a radionuclide study that provides information as to the blood supply of the heart muscle, according to the uptake of the radio-isotope. It is somewhat more accurate than a plain stress test, but there is an additional cost as well. If this study appears positive, the next step is often a cardiac catheterization.

The point of all these studies is to demonstrate that the heart muscle is receiving an adequate supply of oxygen. Without these studies, there is no good way to demonstrate that it is safe to fly. I do not know the specific issues in your case that have required another study, but this is a general answer as to how coronary artery disease is managed. Note that in order to obtain first and second class medical certificates, all airmen with CAD that require treatment must have their cases evaluated by a panel of cardiology consultants, and they must provide a myocardial perfusion scan and a post-treatment cardiac catheterization study for that review.

Courtney Scott, D.O., M.P.H., is the Manager of Aerospace Medical Certification Division in Oklahoma City, Okla. He is board certified in aerospace medicine and has extensive practice experience in civilian and both military and non-military government settings.



So You Want to Be a Pilot?

Finding the Right School: Part 61 vs. Part 141

BY SABRINA WOODS

Photo by Tom Hoffmann

Looking skyward, face tilted up towards the dazzling blue, the sun's rays warm you as you watch all sorts of aircraft go zooming back and forth. There are single-engine marvels, multiengine wonders, rustic warbirds, and spectacular rotorcraft. There are brilliant paint schemes, gleaming components, high-tech gadgetry, and proud "papas" and "mamas" just itching to show off everything from their carefully restored vintage Stearman C3B, to a fresh-from-assembly SC07 *Speed Cruiser*.

It is an air show — all of the general aviation community's finest are on display and YOU want to be a part of it. YOU want to be a pilot ... but where do you start? This is something I have been thinking about for myself lately, so I decided to go to the experts in FAA's General Aviation and Commercial Division's Airman Certification and Training Branch to pick their brains about the process. What I have learned I gladly pass on to you.

But First Thing is First ...

... And that is making sure you are cleared to fly. In order to fly solo, you will need to obtain a student pilot certificate. As of this writing, requirements include being 16 years of age or older for powered aircraft, and reading, understanding, and speaking English. You must pass a flight physical administered by an aviation medical examiner to get a combination medical and student pilot certificate. An alternative is to seek out an FAA inspector or an FAA-designated pilot examiner to obtain (just) your student pilot certificate. Then you are ready for the next step.

In Lewis Caroll's famous book "Alice in Wonderland" the lead protagonist Alice is lost and approaches the Cheshire Cat, presumably to ask for directions. The following ensues:

> *"Would you tell me, please, which way I ought to go from here?"* (Alice)
> *"That depends a good deal on where you want to get to."* (Cheshire Cat)
> *"I don't much care where –"*
> *"Then it doesn't matter which way you go."*

Insufferable as the answer might seem, the Cheshire Cat has a point — your next step should be determining what type of flying you hope to do. That will get you on the right path to mapping out your flying future.

The most common certificate categories are recreational — flying for the pure fun of it; sport — for those who only want to fly Light Sport Aircraft, and private — for those who might want to transition to flying as a profession. Each of these categories has

its own regulations and curriculum requirements. Depending on which you chose, that decision will lead you to choosing either a part 61 training facility or part 141 pilot school.

If those two concepts are a little bit foreign, then this is definitely the article for you. Pilot training typically takes one of three avenues: the two schools mentioned previously (more on those later) and a third option, which I refer to as the "I've been flying since I could walk" path to certification. If you are like me, you weren't lucky enough to be in that latter category. So I will dedicate most of this article to distinguishing between the two schools, and determining (hopefully) which one is right for you.

Two Schools of Thought

As I mentioned earlier, what you want to do with your pilot certificate plays a key role in picking a school. If your goal is to fulfill a lifelong dream of "punching holes in the sky" for fun and leisure, a very popular option is the Sport Pilot certificate. Sport Pilot certification — awarded with the intention of flying only light sport aircraft — has slightly fewer requirements for training than the private pilot and recreational certification. An added bonus is the category's acceptance of a driver's license in lieu of a medical.

You can also pursue a recreational pilot certificate, which is very similar to the light sport but has additional privileges and medical requirements. These certifications are ideal for scratching that "hole punching" itch and, while you can obtain either through both part 61 and 141 schools, a part 61 training program might be the better option if your work and personal obligations limit you on the times you can commit to ground and flight training.

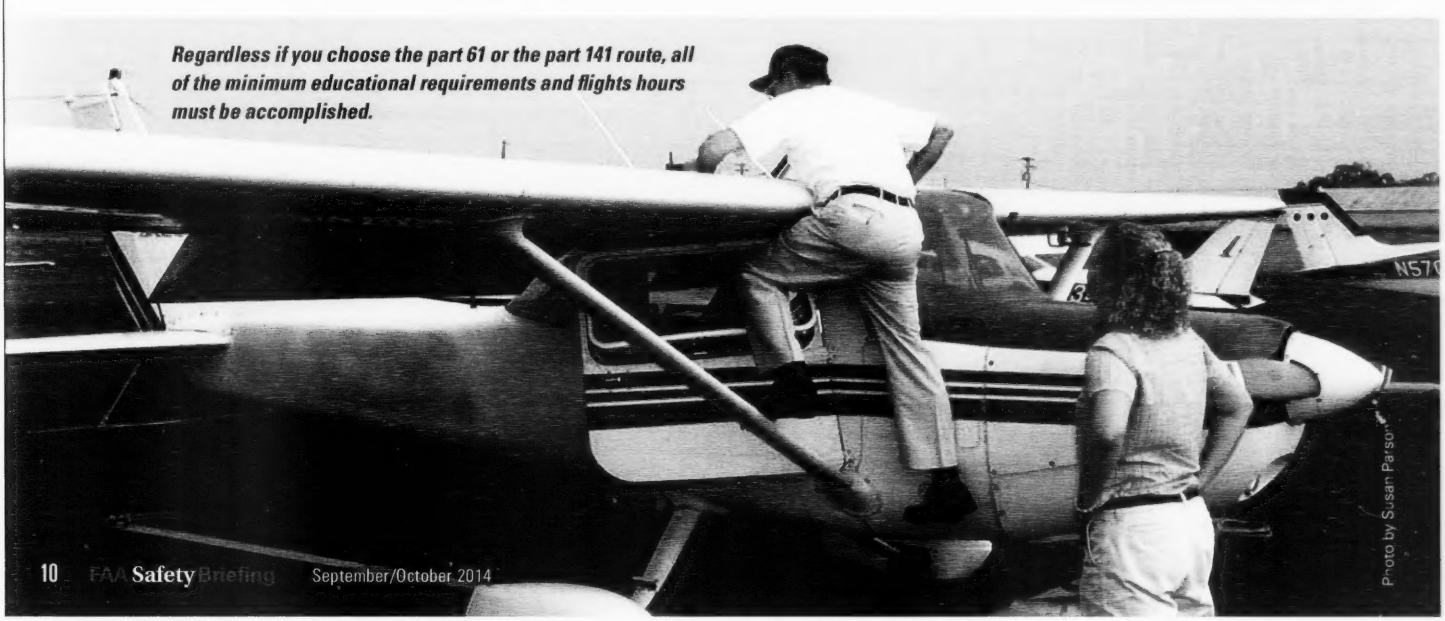
A flight school's training program is defined by federal regulations that give the school its authority to train pilots. Under part 61, the minimum flight hours are 20 hours for a sport pilot certificate, 30 hours for a recreational certificate, and 40 hours for a private pilot certificate. These training programs are considered to be slightly less structured, and therefore more flexible than their part 141 counterparts. While *all* of the educational requirements and minimum flight hours mandated by the FAA must be accomplished, a part 61 training program gives the instructor the authority to pick and choose when, how, and where to cover the required material. In addition, a "second check" by an evaluator (other than your instructor and required in part 141) is not required although a final practical test is by an examiner.

Another bonus to the part 61 process is that the student (you) can take your time interviewing and selecting a "best fit" instructor to ensure that your needs are met. This might not happen as readily in the more structured 141 program. To learn more about selecting a certificated flight instructor (CFI) check out Susan Parson's article "Wanted: The Perfect Flight Instructor" in this same edition of *FAA Safety Briefing*.

Lastly, students under the part 61 curriculum are not required to accomplish formal ground school training. However, passing knowledge and practical tests are still required, just as they are under part 141.

Just a side note here: although a school might identify itself as being "part 141," this does not mean that it cannot take a part 61 approach to training an individual. Keep that in mind when you are selecting a school as it might be something that can be of benefit to you later should your training interests change.

If your heart is more set on becoming a pilot for compensation — i.e, to pilot an aircraft in the tourism, agriculture, or transport industries and get paid as a result — then a part 141 curriculum might be a better



Regardless if you choose the part 61 or the part 141 route, all of the minimum educational requirements and flights hours must be accomplished.

Photo by Susan Parson

fit. Especially for those wanting to become a "driver" for Delta, XOJET, or Southwest (to name a few), several advanced requirements such as airline transport pilot certificate, CFI, and multi-engine ratings will be required.

A part 141 school uses FAA-approved syllabi and lesson plans, and is regularly evaluated by the agency to ensure integrity and quality within the program. Because of its structure, this training program is better suited to those individuals who can take it on full-time. A student must complete a minimum of 35 flight hours to obtain a private pilot certificate (five less that part 61) and 190 flight hours for commercial (250 under part 61). Don't get too hung up in the numbers for either school, however. The current national average for completing either school's initial pilot program is around 60-75 hours. It all depends on your ability, flying frequency, and attitude.

Finally, unlike part 61 training programs that might never have to disclose the institution's pass/fail rates, part 141 schools must meet student performance rates.

As such, many hiring agencies see the part 141 process as being more desirable simply due to the level of oversight involved.

The "Neil Armstrong" Route

Famed pilot and astronaut Neil Armstrong was flying aircraft solo at the age of 16, even before he had a driver's license. If you, too, were lucky enough to have been introduced to flying at a young age and have learned and progressed steadily through the years, there is a way to forgo the formal schoolhouse training and apply for certification — provided you have maintained the proper documentation. At a minimum, you must be 16 years of age (to solo in a powered aircraft), have logged at least 20 hours of training and 20 solo hours under part 61, and have it all documented in a logbook and endorsed by an authorized instructor. Then, once you have demonstrated understanding to a designated pilot examiner, you can go on to take the required tests to get certificated.

Mastering the art of flight is just one of man's many wondrous achievements. Regardless of what path you take to obtain your wings, you'll have to learn, demonstrate, and test according to the same knowledge and skill. So once you have determined what it is you really want, the next step is to pick a handful of schools that interest you, research what they have to offer, and list the pros and cons of each. In this research, you will want to ask yourself a few key questions such as: Does the school meet your needs? How long has it been in business and what is its success rate? Does it come highly recommended by respected aviators? Does it have tools available for further learning and advanced credentials? One suggestion would be to pick a school that has access to simulators. These aviation training devices can help reduce costs, improve your training, and give you experience "flying" in unlikely and dangerous emergency scenarios. And, should your needs change during the program, does the school have a way to absorb or work with that change? Then, pick your place based on what you find out. New experiences and journeys await you, student pilot. May your winds be light, the temperatures mild, and your visibility unlimited.

The Collegiate Route

One other avenue for flight training is through a college or university with an aviation degree program such as Embry-Riddle Aeronautical University, the University of North Dakota, or Purdue University. An added bonus is that there are a wide variety of financial aid programs, scholarships, grants, and student loans to help augment the often hefty bill that flight training can come with.

FAA-authorized aviation degree programs offer the perfect combination of a four-year degree, the total college experience, and the flight instruction necessary to become a professional pilot. Beyond this, some universities have applied and been authorized to certify its graduates for a restricted ATP certificate. This means that if you receive an Associate's degree with 30 or more hours in specific aviation curriculum, you may be eligible to receive a 250 flight hour reduction in flight time towards the ATP certificate (typically 1,500 hours). If you complete 60 or more hours in a Bachelor's program, you might receive up to a 500 hour reduction. For a list of FAA authorized institutions of higher education, check out www.faa.gov/go/InstitutionalAuthority

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Sabrina Woods is an assistant editor for FAA Safety Briefing. *She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.*

Head of the Class: The Student Pilot Edition

BY SABRINA WOODS

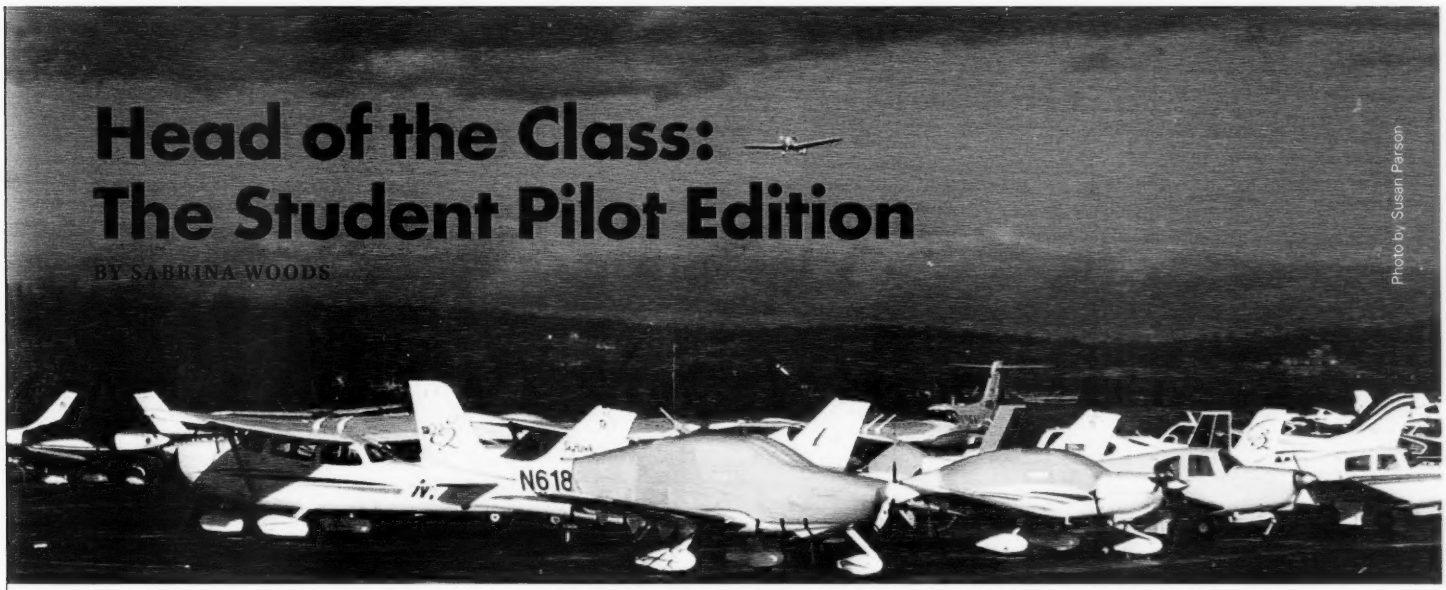

Photo by Susan Parson

Pilot #1 is a rookie aviator, new to the cockpit and just learning all of the basics of manipulating an aircraft into flight. She is eager, determined, and keen. Pilot #2 is a seasoned, grizzled, veteran of flight. With well over 3,000 hours, he is looking to move on to more advanced credentialing by obtaining his airline transport pilot certificate.

So which student fares better in flight training adventures?

The answer: it depends.

Fledgling Follies

"They don't know what they don't know," says Allan Kash, an FAA aviation safety inspector (and certificated flight instructor [CFI]), about his *ab initio* students — those just entering the very first stages of flight training. It might sound like a knock against his students, but in reality, "not knowing" much can be a good thing. There are no preconceived ideas interfering with what he is trying to relay to the learner.

The most successful aviation learners tend to be absorbent sponges, awed by what they are attempting but tinged with just enough healthy trepidation and respect for the task to achieve their goals while mitigating risk.

The most successful students tend to be absorbent sponges, awed by what they are attempting but tinged with just enough healthy trepidation and respect for the task to achieve their goals while mitigating risk. That little bit of wariness is key because "overconfidence can be dangerous," according to Marcel Bernard, also a CFI now working for the FAA.

"When providing flight instruction, some students can become overconfident — their perception is that their skills are better than they really are." Another concern is when it becomes obvious that the student isn't taking the time needed outside of the cockpit to ensure understanding. And by that I mean they just aren't studying.

In these circumstances, Bernard explains that it is his job to be explicit about what is considered "acceptable performance." It can be kinesthetic (hands on), like pointing out to his student that he/she has to touch down within the first 200 feet of the landing area (versus 400 feet down the runway), or it can take the form of good old fashioned book knowledge, such as being able to remember, understand, and respect aircraft operating limitations.

Bernard points out that it is imperative for the flight instructor, not the learner, to determine and communicate acceptable performance. In addition, the instructor needs to provide constructive criticism, while being supportive and emphasizing/praising the skills the student has performed well. A good student has to be willing to receive it all.

This is not to say that a CFI, when relinquishing the yoke, won't have a few moments of anxiety while even the most diligent student navigates through the trickier parts of flight. But this is all taken in stride and capped by a feeling of pride and satisfaction in seeing one's protégé succeed.

"When teaching someone to fly there is nothing more gratifying than to see them go from frustration and dismay, to the exhilaration and joy of getting a flight maneuver — especially landings — just right," reflects Bernard.

"Been There, Done That" Mentality

On the other end of the aviation education spectrum is the seasoned pilot endeavoring to take the next step. They are already on the right path — increasing their education — and most of the time their past experiences make it easier to perform.

Sometimes, though, that previous exposure can work as a disservice. "Some pilots-in-training slip into the 'just lemme at it' attitude," says Kash. As a result, they might not be as diligent in preparing or studying for a phase of training simply because they believe they have "been there, done that." In addition, some pilots who have been around for a while can lose a bit of the caution they had in the newbie stage. This

can lead to mistakes. Worse, established bad habits or unique ways of "getting it done" might be hard to overcome, as well as detract from what the instructor is trying to teach.

Says Joe Morra, yet another CFI in the FAA: "I remember doing some instrument training in a guy's own airplane. He had his own way of doing things. One way that he tried to save some money and fuel was to get his instrument clearance on a handheld transceiver rather than start up the aircraft or power up all of his avionics. I questioned this method but he insisted that he had done this 'many times' with other instructors.

"It was either our position at the airport or maybe the transceiver didn't have enough juice, but the clearance came through in broken transmissions. The pilot ended up frustrated, which affected his ability to correctly read back his clearance. It got so bad the controller finally asked if there was an instructor onboard the aircraft. That is NEVER a good thing to hear, especially for a seasoned aircraft owner," Morra remembers, chuckling.

"We both learned that the handheld clearance method might not always be the best way to go. In the end it was a successful flight despite the rocky start."

Class Valedictorian?

These reflections and memories of CFIs echo each other regardless of whether they are talking about the *ab initio* or the veterans. So which aviator goes to the head of the class?

A student pilot is, by definition, an inquisitive person. He or she can be motivated by the science or art of flying, or simply driven by that innate human desire to fly. CFIs will always have different experiences with their students but the one thing they all agree on is that it doesn't much matter if a person is brand new off the street, or if they have been flying for years. It's the person's attitude and willingness to put forth the extra time and effort that ultimately lead to success in a flight training program. Given that perspective, anyone can be class valedictorian. You should aim for no less!

Sabrina Woods is an assistant editor for FAA Safety Briefing. *She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.*

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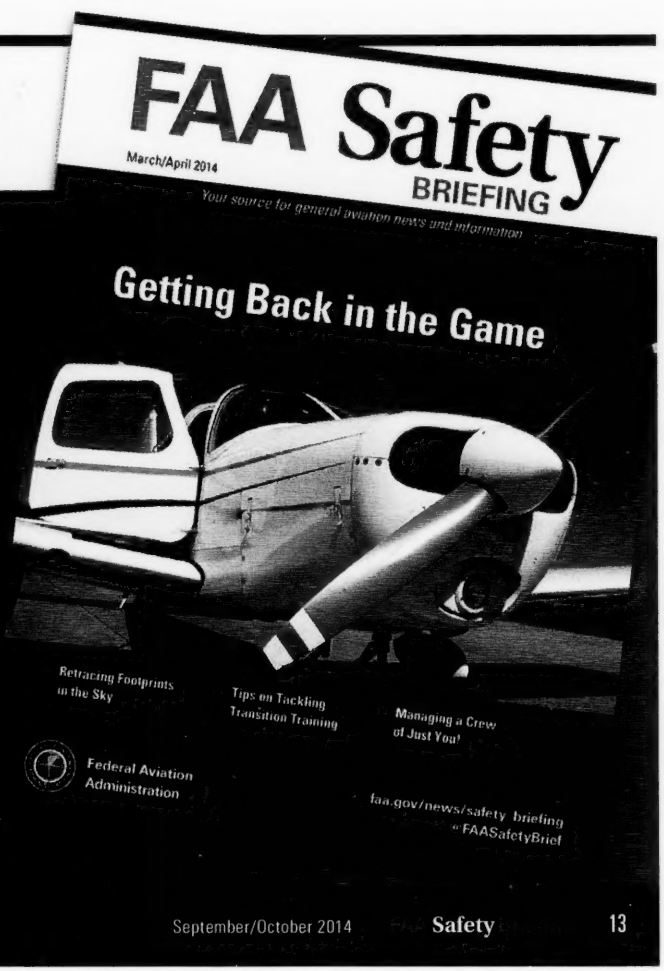

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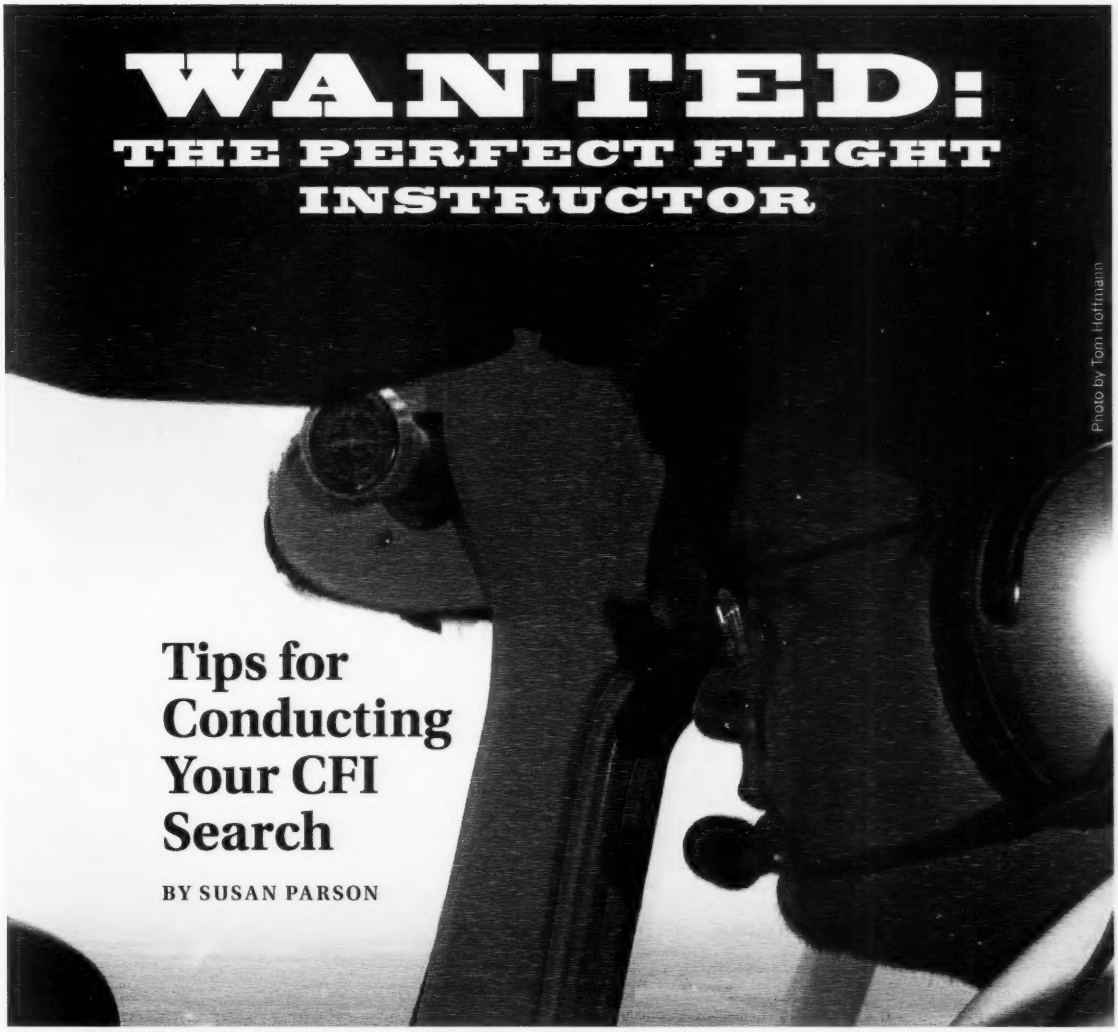

Photo by Tom Hoffmann

Tips for Conducting Your CFI Search

BY SUSAN PARSON

When I launched my learn-to-fly quest in the early 1990s, I didn't have any real guidance on finding the right flight instructor. I'm the first and only pilot in my immediate family and, since I had just returned from several years of living and working overseas through my State Department job, I didn't yet have a trusted circle of local friends. The Internet was barely a gleam in someone's eye. In short, I was pretty much on my own to figure it out.

I did actually find a first-rate flight instructor. Warren (now an airline pilot) took me through training not just for the private pilot certificate, but also for my instrument rating, advanced and instrument ground instructor, commercial certificate, and certificated flight instructor (CFI) qualifications. I was very fortunate to have a highly-qualified, conscientious, and safety-conscious CFI right from the start. I could say that I just got lucky — and to a certain extent that's true. In the absence of better guidance, I relied heavily on the gut check method of CFI selection. I met and ruled out several CFIs before I met Warren. Within the first five minutes of our discussion, I knew he was "the one."

I still contend that the gut check method of CFI selection has its place, but the richness of research resources these days means that the gut check should be only one element in your search for the perfect (for you) CFI.

Step One: Conduct Internet Research

Since we now have the benefit of the Internet plus a panoply of portable gadgets that allow anytime/anywhere Web access, that's a good place to initiate your CFI search. Start with the letter "A" for AOPA — the Aircraft Owners and Pilots Association (www.aopa.org). Placing your mouse on the home page "Pilot Resources" tab will reveal a drop-down menu whose very first item is "Learn to Fly." The resources available there will give you a great overview — and you can download AOPA's three free "Flight Training Field Guides."

Next, check out the schools — bearing in mind the part 61/part 141 differences that Sabrina Woods explains on page 9. You can Google "flight schools," but another option is to use the AOPA Flight Training magazine's online flight school directory search tool (http://flighttraining.aopa.org/learntofly/school/flight_schools/).

To further narrow the search for a quality instructor in your area, you might also check for instructors

who have earned the FAA's Gold Seal Flight Instructor certificate. This credential indicates a CFI that has instructed at least 10 students with an 80-percent success rate on their initial checkride and/or has conducted a minimum number of practical or graduation tests. You can also do a search for many industry-recognized CFIs at organizations like Master Instructors LLC, the National Association of Flight Instructors (NAFI), and the Society for Aviation and Flight Educators (SAFE), all of which maintain lists organized by location. See "Learn More" at the end of this article for links to these organizations.

Step Two: Seek Recommendations

If you are interested in learning to fly, chances are good that you know at least one person who already flies. If that person lives in your area, ask for his or her recommendations regarding flight schools and flight instructors. Ask if your pilot friend has any knowledge of the CFIs you have already listed from your Internet research. You might also get a few names you didn't find through your own investigation. Either way, don't let an "oh, he's a great guy" sort of response be the end of the discussion. Ask lots of questions. For example:

- Would you recommend this instructor — in general and, specifically, for me?
- Why do you think this CFI would be a good fit for my needs?
- Did you fly with this instructor, or do you know anyone else who did?
- How would you describe his or her greatest strengths as a flight instructor?
- Did anything about this person — not limited to teaching techniques — cause you concern?
- What else should I know or consider?

Step Three: Do the Gut Check

Once you have used the first two steps to narrow your search to a handful of specific individual CFIs, the next step is to meet each one and conduct an interview. Keep in mind that "interview" is very much the appropriate term for this part of the process, because you are the employer. You are considering whether to hire this person for a very important job. Remember that it's not just a question of time and money. For the first part of your flight training, in fact, you will be completely dependent on this person for your safety and well-being. Just as with any job interview, you need to be well prepared. Here are a few questions you might consider asking a prospective CFI:

- Why did you become a CFI?
- How long have you been a CFI?
- How many students have you taught to fly?
- How many of your students passed the check ride on the first attempt?
- How long does it usually take your students to earn a private pilot certificate?
- What do you like most about flight instructing?
- How would you describe your teaching style?
- Do you use a syllabus? Could you show it to me?
- What are your career goals?
- What do you expect from your students?

I'm sure you can think of many other questions, but these are a good place to start the get acquainted process. What the instructor says in response to these questions will give you some important objective information about the instructor's teaching methods, success rate, and level of experience. But you must also pay close attention to how the instructor responds, because that will be an important part of the gut check. The reality is that many flight instructors entered the flight training business because it is the only realistic way to get the flight time and experience to qualify for an air carrier job. There's nothing wrong with an instructor who wants to work for an airline, but you want to be sure that he or she is not just marking time. The instructor should be able to persuade you, through both the answers provided and general demeanor, that you will get his or her best instructional efforts. If you get any sense that your prospective instructor is merely going through the motions, you should say "thanks for your time" and make your own motions toward the exit.

I was not savvy enough to have a specific list of questions for my prospective flight instructors, but I can tell you why Warren passed my gut check test. He was:

- Professional. When the flight school referred my call to Warren, he scheduled an appointment for me so we could have uninterrupted time to talk. He was neatly dressed and on time. He greeted me by name and treated me with courtesy and respect.
- Organized. Warren offered to walk me through the school's standard ground and flight training curriculum. He took me to the flight line to show me the school's training fleet, and he answered my questions about choosing the right aircraft. He explained that very few weekend students actually finish training in just 40 hours, and gave me what turned out to be a very accurate average

What the instructor says in response to your questions will give you some important objective information about the instructor's teaching methods, success rate, and level of experience. But how the instructor responds will be an important part of the gut check.

number of hours for completion. He told me what he expected from a student, and what a student should expect from him as a flight instructor.

- Honest. Warren explained that in addition to the school's enrollment kit, I would probably need and want to purchase additional items such as a headset. I also respected his honesty with respect to two key points. He indicated that I would be his first student, but he outlined his own training/experience and told me why he thought he would be the instructor I needed. In addition, he was very clear about his airline career goals, but he explained that he expected to be at the flight school for at least 12-18 months. I also got an outline of how the school handles the transition of students from one instructor to another.

Needless to say, I was sold. I'm happy to say I never had a second thought or a second's regret about my CFI selection.

Before you make your final hiring decision, though, consider requesting an introductory flight lesson with your prospective CFI. The modest cost of a brief introductory lesson could save you a great deal of money — not to mention emotional distress — if you discover that you and your otherwise perfect CFI clash where it counts — in the cockpit.

Step ... Away?

That leads to my final point. Even if you have been very careful and conscientious in conducting your CFI search, it's entirely possible for something to go awry in terms of the all-important personal relationship, mutual respect, and interpersonal "chemistry." If the chemistry is off in any way, don't wait for something to explode! Take action right away. If possible, explicitly identify the element or elements that are creating conflict or discomfort. Talk to your instructor. If the issues can be addressed, you've both learned something. If the instructor reacts in a defensive or negative way, you have learned something. Courteously but firmly end the CFI/student relationship, and ask to speak to the school's chief instructor about hiring a different instructor. If the school does not accommodate your request, find another school. There is far too much at stake in terms of safety, time, and money to remain in a dysfunctional instructional situation. Besides, flying and flight training are supposed to be fun — and, with the right instructor, that's exactly how it works.

Happy hunting!

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

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Aircraft Owners and Pilots Association
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flighttraining.aopa.org/learntofly/school/flight_schools/

Master Instructors LLC
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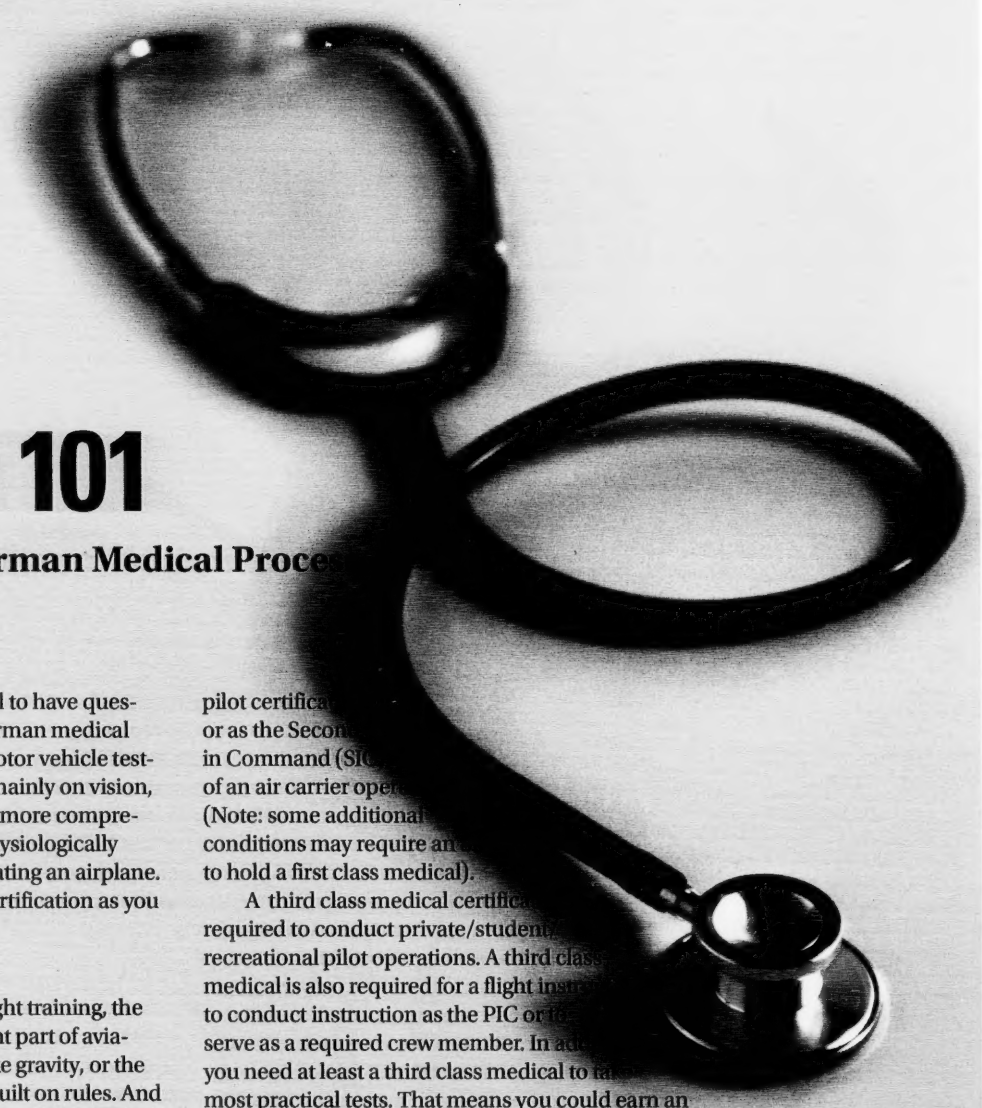
www.safepilots.org/



Medical 101

Understanding the Airman Medical Proce

BY JAMES WILLIAMS

If you are new to aviation, it is normal to have questions or concerns about the FAA's airman medical certification process. Unlike state motor vehicle testing requirements, which are focused mainly on vision, airman medical regulations are much more comprehensive and are based on the more physiologically demanding tasks required when operating an airplane. So here's a basic primer on medical certification as you start your aviation journey.

The Rules are the Rules

As you'll learn in the process of flight training, the rules (aka regulations) are an important part of aviation. Whether it's the laws of nature, like gravity, or the laws of man, like airspace, aviation is built on rules. And when it comes to medical certification, there are two places to look for those rules. The first is Title 14 Code of Federal Regulations (14 CFR) section 61.23, which describes the class of medical that is required for different types of flying. The second is 14 CFR part 67, which covers the actual medical standards for each of the three classes of medicals. There is also 14 CFR section 61.53 on medical prohibitions, which we'll cover later.

Which Class are You in?

For student pilots just starting out — and the core audience for this article — the medical questions typically center around: Do I need a medical? And, what class of medical should I get? To answer these, we need to first look to what you want to do with your certificate. In very general terms, a first class medical certificate is required to act as Pilot in Command (PIC) with an Airline Transport Pilot (ATP) certificate for flights that require an ATP, i.e., air carrier operations.

A second class medical certificate is required to act as PIC for any operation that requires a commercial pilot certifica
or as the Secon
in Command (SI
of an air carrier oper
(Note: some additiona
conditions may require an
to hold a first class medical).

A third class medical certific
required to conduct private/student
recreational pilot operations. A third clas
medical is also required for a flight inst
to conduct instruction as the PIC or to
serve as a required crew member. In ad
you need at least a third class medical to ta
most practical tests. That means you could earn an ATP certificate even if you could not hold the medical needed to exercise its privileges.

If you're only flying a balloon, glider, or light-sport aircraft, no medical is required; you can use your driver's license instead.

This is a very basic and general description of these certificates because, quite frankly, you could write tomes (and people have) on all of the different medical requirements. For a more in-depth conversation on medical requirements, please see "The Right Stuff" from our January February 2013 issue (page 18: www.faa.gov/news/safety_briefing/2013/media/JanFeb2013.pdf).

One important piece of advice is to schedule your initial medical exam for the class of medical you wish to hold. If your intention as a student pilot is to go on to a career in the airline industry, then you should go for a first class medical. But if your intention is just to fly as a hobby, then a third class medical will do. If you take the first class medical route, it does not mean you

will need to go through the process of getting first class exams every time you need a new medical. Still, it's a good idea to figure out early on if you qualify for a first class medical rather than after you've put in the hard work and money required earning an ATP.

What to Know Before You Go

Before you head out to your exam, you need to know what is expected of you. The place to start is with 14 CFR part 67, which outlines the basic standards for each class of medical. Once you have reviewed the requirements listed for your desired class, take a look at the FAA's Aviation Medical Examiner (AME) guide. The AME guide is publicly available (www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/) and is a more complete listing of criteria. While it's written for AMEs, it allows you to see the exact requirements for specific conditions before your exam. So long as you meet the criteria in the AME guide, you should expect to pass your medical.

Medical certification is a continuous process that requires your constant attention.

Once you know what's expected of you, it's time to find an AME. The simplest way of doing this is to log on to FAA's AME locator and pick one (www.faa.gov/pilots/amelocator/), but as always, a little research is in order. Your AME is going to be your partner in the medical certification process, so time spent picking a good one is well worth the investment. For more tips on finding a good AME check out page 10 of our Jan/Feb 2013 issue (www.faa.gov/news/safety_briefing/2013/media/JanFeb2013.pdf).

Finally, you will need to know this web address: https://medxpress.faa.gov/. In October of 2012, the FAA transitioned from paper applications to an electronic process for medical certification. What this means to you is that you must visit MedXPress before you head to the AME's office. MedXPress allows you to fill out your medical application at your convenience, before meeting with your AME. It also makes the process of storing and transmitting information between you (the applicant), the AME, and the FAA, much more efficient. For more information on how to use MedXPress, see page 20 of the JanFeb 2013 issue (www.faa.gov/news/safety_briefing/2013/media/JanFeb2013.pdf).

What if There's a Problem?

Take a deep breath. It's not the end of the world. If, for some reason, you don't meet the criteria for issuance of your desired medical certificate, the FAA has ways to get you flying. While not all people are able to get certificated, 90 percent of the applicants that walk into an AME's office walk out with their medical certificate. Many of those in the remaining 10 percent still end up getting some form of medical certificate, though it does take some extra effort by you and your AME to supply the information the FAA requires to evaluate your particular condition.

There are a few ways this can happen. First is a special issuance. Section 67.401 allows the Federal Air Surgeon to certificate applicants that don't meet the criteria in the other sections of part 67 via the special issuance process, usually with certain restrictions. For a more detailed look at the special issuance process, see page two of our Jan/Feb 2009 issue (http://www.faa.gov/news/safety_briefing/2009/media/JanFeb2009.pdf). Another method is the Statement of Demonstrated Ability (SODA). SODA allows airmen with a static or non-progressive condition to show the FAA that they can safety operate an aircraft without putting the public at risk. A SODA may require a medical test flight conducted with an FAA Aviation Safety

Photo by James Williams

Inspector to validate their flying skills, and it may also include some operational restrictions.

So, even if you can't walk out of the AME's office with a medical certificate in hand, it doesn't have to be the end of the story. In the last few years, FAA's Office of Aerospace Medicine has been looking for ways to leverage the knowledge and experience of AMEs to reduce the number of medical applications that are deferred to the Regional Flight Surgeons (RFS) or the Aerospace Medical Certification Division (AMCD) in Oklahoma City.

The first program to accomplish that goal is called Conditions AMEs Can Issue (CACI). CACI allows an AME to issue a regular medical certificate for conditions that previously required a deferral to the AMCD, or that were outright disqualifying. For more information on CACI and CACI conditions, please see: www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/certification_ws/.

The second program is AME Assisted Special Issuance (AASI). This is for airmen who have certain conditions that require a special issuance from the Regional Flight Surgeon (RFS) or AMCD. If your condition qualifies and you meet the specified criteria, you may be able to take advantage of the AASI process to speed your renewal. AASI allows your AME to directly issue your special issuance medical certificate if you provide all of the specifically requested additional information at the time of your exam. So while your initial Special Issuance Certificate after diagnosis would still have to be deferred, a renewal could be issued on site, saving you a significant amount of time. For more information on AASI and Special Issuance check out: www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/special_iss/

So That's the End Right?

Not quite. It's a common misconception with even experienced pilots that the medical certification process begins when you enter the AME's office and ends when you receive your medical certificate. That just isn't true. Medical certification is a continuous process that requires your constant attention. Before any flight, and at any point during a flight for that matter, you as the PIC are responsible for making sure you meet the standards for your class of medical. If for any reason you don't, you are expected to ground yourself until you do meet the standards again. This point is covered in section 61.53. If you have any questions as to whether or not you should be flying, please contact your AME. Also, remember that certain medications, even over-the-counter ones, could also be disqualifying. The FAA recommends that, when taking medications that weren't reported to your AME, to wait five times the dose interval before resuming flight operations. So if a medicine directs "X" pills every six hours, the wait time would be 30 hours.

But My Doctor Says I'm Fine

This is another point of common confusion for new pilots. "I just went for my annual physical with my family doctor and he/she said I was fine. Why is my AME giving me such a hard time?" This seeming contradiction arises from the fact that the roles of your general practitioner and AME are very different, as are their concerns. Your relationship with your general practitioner is one of ongoing care, and your health is the paramount concern. Your relationship with your AME (assuming your AME is not also your regular doctor) is a discrete one where your AME's concern is focused on whether or not you meet the standards for your medical certificate. He or she has had specialized training, and can recognize that certain conditions that may seem benign when on the Earth's surface can cause problems at altitude. An AME's responsibility is more focused on ensuring that you are medically safe to operate an aircraft in any flying condition you could face.

Your relationship with your AME is a discrete one where your AME's concern is focused primarily on whether or not you meet the standards for your aviation medical certificate.

With some preparation and reasonable expectations, the aviation medical certification process should be relatively painless for most applicants. If things don't go how you'd like initially, know that you still have options. While it may take more tests and exams (and more time and possibly, money), there are relatively few true "showstoppers" to getting some form of medical certificate. If you're willing to stick with it, the FAA is willing to work with you.

James Williams is FAA Safety Briefing's *assistant editor and photo editor. He is also a pilot and ground instructor.*

From Aerodynamics to Zulu

Making the Most of Your Ground School Experience

BY SUSAN PARSON

When you're all pumped up about learning to fly, the idea of ground school may not seem all that exciting. Far too often, both learners and (sad to say) instructors view this part of the process as a necessary evil — just something you have to endure in order to pass the FAA knowledge test (aka "the written test"). It's true that there is plenty of room for improvement in the much-maligned FAA knowledge test. To that end, the ongoing industry-led Airman Certification Standards (ACS) project (see sidebar) is helping the agency start those improvements by providing a framework the FAA can use to better align knowledge test questions with practical skills.

Your approach to ground school, though, should be focused on far more than a box-checking pass-the-test exercise. Ground school is the key to making the most of not just your flight training experience, but also the flying and training you do after initial certification. Allow me to explain by taking you through a guided tour of the typical ground school curriculum.

Airplane Systems

For many learners, the first look at the inside of a typical GA airplane is bewildering and maybe even a little bit intimidating. Whether it's a newer model equipped with glass cockpit avionics or an older bird with the traditional round dials (known colloquially as "steam gauges"), you might find yourself wondering how you will ever learn it all. A discussion of airplane anatomy and systems is certainly included in your early flight lessons, but you will learn a lot more and spend a lot less by mastering the basics in a good ground school course.

Pilots quickly learn "aviate, navigate, communicate" as the way to remember task priorities. The aviate, navigate, communicate mantra also provides a great framework for learning aircraft systems. This particular ground school session focuses heavily on "aviate" by presenting controls (exterior control surfaces and internal flight controls), powerplant, and instruments used to monitor things like airspeed, attitude, and altitude.

Though navigation and communication are covered in later ground school sessions, this one will likely include an introduction to the instruments used for these important functions.

Aerodynamics

Once you have a basic grasp of how the exterior flight control surfaces move and how the internal flight controls are used to move them, you're ready to learn about how the airplane and its parts interact with their natural environment — the air. In this part of ground school, you will learn how the pilot uses flight controls and knowledge of aerodynamics to manage lift, weight, thrust, and drag, which are known as the Four Forces of Flight. (Warning: You are also likely to hear the corny pilot joke; "May the (four) forces be with you.")

You will also learn important terms and concepts such as angle of attack and relative wind, and how these concepts relate to an aerodynamic stall. Your flight training will include hands-on demonstration and practice of these concepts but, as in the case of airplane systems, mastering these ideas in ground school will allow you to learn a lot more and spend a lot less when you get to the flight training stage.

Flight Environment

This part of ground school introduces you to a number of important topics. You will learn about types and classes of airspace, along with requirements and procedures for operating in each one. There will be a detailed introduction to airports, traffic pattern operations, runway signs and markings, and much more. In this context, you may also get an introduction to some of the "rules of the road" for collision avoidance, such as who has the right of way when two or more aircraft are converging. Another important flight environment topic is a detailed introduction to aeronautical charts, such as VFR sectional and terminal area charts.

Communication Procedures

English is my native language, but every word I heard on the radio during my first flight lesson would have been complete gibberish if I had not already learned something about "PilotSpeak" in ground school. As you might imagine, the language of aviation is highly precise in both its grammar (structure) and its vocabulary, including use of the phonetic alphabet. In fact, there is a dictionary of aviation terms and phrases called the Pilot/Controller Glossary to ensure that pilots and controllers assign the same meaning to the same words and phrases. This session of ground school is thus intended to help you start learning the grammar and structure of PilotSpeak. Investing the time to learn these basics on the ground will help you enormously in the air, both in making your own transmissions and in understanding transmissions made to you.

Meteorology for Pilots

Because we operate in the weather, GA pilots develop a near-obsessive interest in this topic. Ground school introduces you to basic principles of meteorology. These include learning what causes weather (uneven heating of the earth's surface and resulting heat exchanges), how differences in air pressure create fronts, how fronts behave, and why pilots need to care about moisture and temperature. You will learn to identify cloud types and use them as weather "signposts" in the sky. And, of course, no session on meteorology would be complete without a thorough discussion of hazards such as thunderstorms, turbulence, wind shear, and ice.

Aviation Weather Data

Logically enough, you need to understand what a weather front is and how it behaves before you can understand how it impacts you as a GA pilot. Therefore, once you have mastered a few basic principles and concepts of meteorology, you are ready for a ground school lesson on the printed and electronically-available reports and forecasts, graphic weather products, and information sources used to convey weather information to pilots. You will learn what weather products are available, along with their content and limitations. This ground school session will also cover how to use various weather products for preflight planning and en route weather decision-making.

Ground school is the key to making the most of not just your flight training experience, but also the flying and training you do after initial certification.

Airplane Performance

All airplanes have limitations. When the manufacturer wants to certificate a new aircraft make and model, the company has to perform extensive testing to determine how the aircraft will perform in a variety of operating conditions (e.g., altitude, temperature, pressure). The manufacturer prints the results of these tests in the performance section of the aircraft's Pilot Operating Handbook (POH) or Airplane Flying Manual (AFM). In ground school, you will learn to use performance charts, graphs, and tables to determine things like takeoff and landing distance, climb and cruise performance, expected fuel consumption, and crosswind performance. This part of ground school also covers the very important subject of weight and balance.

Navigation

This part of ground school offers an introduction to the principles of navigation, starting with basic ideas like compass directions, pilotage, and dead reckoning. Traditional ground school navigation sessions have

focused heavily on interpreting and using VOR (very-high-frequency omnidirectional range) and NDB (non-directional beacon) ground stations and the associated panel-mounted receivers for radio navigation, but current courses have naturally begun to focus more on the principles (and limitations) of GPS satellite navigation.

Cross-Country Flight Planning

I typically present this part of a ground school course as the "capstone" session. Information on the flight planning process, human factors, and aeronautical decision-making is presented for the first time, but the development of an assigned practice flight plan allows — indeed, requires — the learner to connect and correlate material from many of the previous ground school sessions. Even if you use one of the many excellent flight planning apps to assist in this process, I would argue that there is still value in learning to use a good old-fashioned plotter (and maybe even an E6-B slide rule flight computer) to master the fundamentals of plotting a course and calculating flight distance, time, and fuel consumption. (In case you were wondering where the "zulu" part of this article's title fits, this area is one answer to that question. A solid grasp of Universal Coordinated Time — zulu — is very helpful in flight planning.)

People often ask whether to complete ground school before flight training, or pursue them simultaneously. My answer? It depends.

Regulations

Pilots, like drivers, are expected to know the rules of the road for both certification and safe operation. To that end, this ground school session provides information on the major Title 14 Code of Federal Regulations (CFR) elements pertaining to these issues. Typically, this session presents 14 CFR part 1 (definitions), 14 CFR part 61 (certification of pilots), and 14 CFR part 91 (general operating rules). There is also a discussion of NTSB part 830, which covers accident and incident reporting requirements.

Which Comes First?

One last point. People often ask whether to complete ground school before flight training, or pursue them simultaneously. My answer? It depends. There is no single best answer for all circumstances, but here are the guidelines I offer. The demands of ground school can be substantial, with extensive reading and even homework assignments. If you are a working adult taking ground school at night or on weekends, my advice is to consider a sequential approach. First direct your limited time and energy to completing ground school and, ideally, taking (and of course passing!) the knowledge test immediately afterward. Grounded (so to speak) in your new aeronautical knowledge, you can then focus all of your spare time and energy toward applying that knowledge to flight training.

If your circumstances do afford sufficient time and energy for a simultaneous approach to ground school and flight training, go for it. However, I still recommend that you consider completing the first few ground school sessions before you start flight training. As noted, you will learn more and spend less if you can bring at least basic knowledge of airplane systems, aerodynamics, communications, and flight environment to your first flying lesson.

Now — go forth and learn, and may the four forces be with you!

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

Preview – Meet the ACS

Moving toward the Airman Certification Standards

BY SUSAN PARSON

If you are a current or potential student pilot, or if you are a certificated pilot considering a new certificate or rating, you may have checked 14 CFR part 61 to find out what the rules require for you to qualify for that credential. If so, you will have noticed that for each certificate or rating, 14 CFR has a list of topics for aeronautical knowledge and another list for flight proficiency. In broad terms, these two sections list the topics that must be taught, and then successfully tested, via the FAA knowledge test (aeronautical knowledge) and the practical test (flight proficiency).

Many years ago, the FAA developed the Practical Test Standards (PTS) to standardize the practical test by defining acceptable performance of the required skills. However, there is currently no such detailed and explicit guidance for the knowledge test. This situation has complicated development of knowledge test questions. It has also led to growing aviation community concerns about the quality and relevance of airman knowledge testing materials.

To address these concerns, the FAA chartered the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC) in September 2011 to make recommendations on improvements to airman knowledge testing. This group, which included representation from universities, training providers, and associations, determined that there is no way to "fix" the knowledge test in a meaningful and sustainable way without a knowledge test standard akin to the PTS.

What is the ACS?

The ARC briefly considered proposing a "Knowledge Test Standards" (KTS) document that would be the knowledge test companion to the skill-focused PTS. However, ARC members feared that separate KTS documents could result in divergence between a KTS and the PTS.

The ARC concluded that aviation safety and community needs would be best served by integrating task-specific aeronautical knowledge from the areas listed in 14 CFR part 61 into the appropriate Area of Operation in the existing PTS, and by adding task-appropriate risk management elements for each Area of Operation. This "Airman Certification Standards" (ACS) approach would thus define not only the performance metrics for knowledge and skill, but also the required content for guidance materials such as the FAA-H-series handbooks and for relevant knowledge test questions.

As envisioned by the ARC's aviation community members, the ACS framework does not increase or expand any of the skill evaluation requirements in the existing PTS, but it significantly improves the PTS in several ways. Specifically, the ACS approach provides integrated guidance that defines performance metrics for aeronautical knowledge as well as flight proficiency (skill); strengthens the PTS by explicitly defining the aeronautical knowledge needed to support each Area of Operation/task; enhances safety by using the risk management section in each ACS Area of Operation to translate abstract terms like aeronautical decision-making into specific safety behaviors relevant to each task; and eliminates "bloat" by consolidating duplicative or overlapping tasks in the existing PTS.

What's Next?

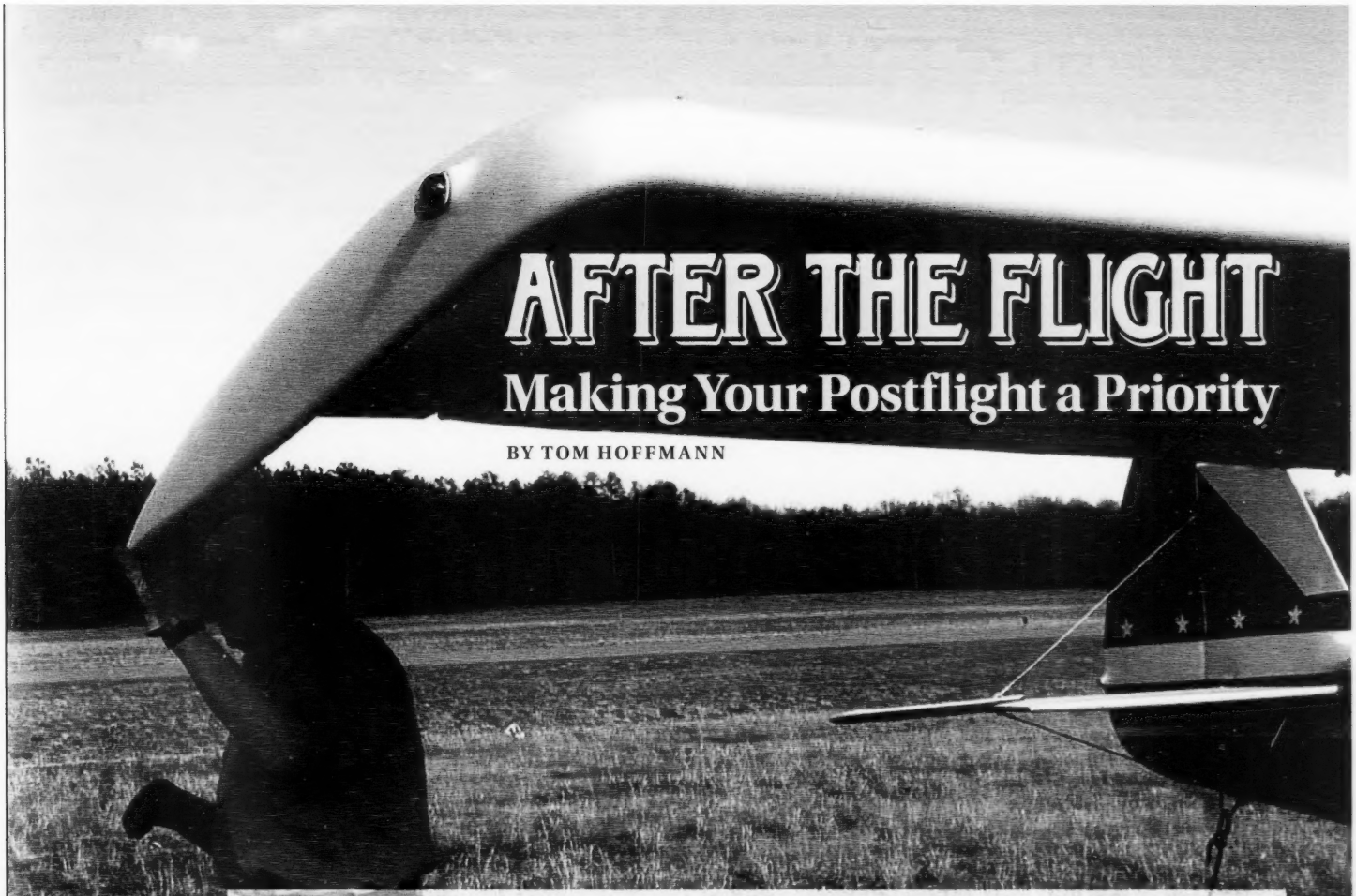
Upon receipt of the ARC's report and recommendations, the FAA asked the industry-led Aviation Rulemaking Advisory Committee (ARAC) to establish an Airman Testing Standards and Training (ATST) Working Group (WG) to develop proposed ACS documents for the private pilot certificate, the flight instructor certificate, and the instrument rating, as well as recommendations for improving associated handbooks, and for aligning test questions to the defined knowledge and risk management standards in the ACS. At the request of this industry group, which included many members of the original ARC, the FAA established several dockets in order for the group to receive public comment on its ACS proposals.

To take this work to the next step, in December 2013 the FAA asked the industry-led ARAC to establish a third group, the Airman Certification System Working Group. The ACS Working Group is charged with completing work on the "foundational" set of ACS documents (i.e., for the private, commercial, ATP, and instructor certificates and the instrument rating), mapping standards to guidance (e.g., handbooks), and — importantly — prototyping use of the ACS approach to training and testing. As of this writing, the first ACS prototype training course for a summer private pilot certification course is underway in Florida.

Both the aviation community experts who developed the ACS and the FAA employees assigned to monitor the effort believe the ACS approach will improve airman testing and training. It could also decrease training time and costs by focusing more closely on what an applicant really needs to know.

The FAA will continue to work closely with the aviation community to refine and, at the appropriate time, introduce the ACS approach more broadly.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.



AFTER THE FLIGHT

Making Your Postflight a Priority

BY TOM HOFFMANN

You've done it. After a few "not-so-soft" soft field landings, you kept your Cessna 152 on a textbook approach — despite a nagging 12-knot crosswind — and greased the landing on your final try. A sense of relief flows over as you can only imagine your instructor nodding with approval out of the corner of your eye.

You run through your after-landing checklist, grinning from ear-to-ear, and cheerfully head back to base. At the flightline you secure the aircraft, jot down the 1.2 hours of solo time you've earned on the Hobbs meter, and eagerly head off to share all the details with your instructor. The almost joyous debrief with your instructor turns south quickly when the flight school manager interrupts to ask about an ELT signal that was recently activated. Suddenly you flash back to those less than stellar landings and recall that you did not check 121.5 on the radio before you shut down. Yikes.

Thankfully, the errant signal in this case is promptly identified and deactivated (yes, it was you), and no additional manpower was expended searching for a "missing" airplane. Although you took a bit of an ego-bruising from this experience, you can also take away an important lesson: never skimp on proper postflight procedures.

It's Not Over Until It's Over

For many pilots, mentally "checking out" from a flight after taxiing off the active runway is an all too common occurrence, even among those flying heavy metal. Some might say it's easy to breeze through a postflight, thinking the hard part of the flight is well behind you. The truth is that no flight is 100-percent complete until you have taken proper care of the aircraft. Your actions (or inaction) during a postflight can directly affect the safety of the next pilot, which incidentally, may just be you! Many also might overlook the fact that postflight procedures are part of the Practical Test Standards and will be covered on the checkride for most pilot certificates. Learning to properly park, shut down, and secure your aircraft is as equally important as mastering any other phase of flight.

Check, Please!

A good place to start building sound postflight procedures is with good checklist habits. After you're clear of the runway, begin your after-landing checklist. This usually involves tasks designed to clean up the aircraft, e.g., retracting flaps, turning off unnecessary lights, and placing the transponder to standby mode.

Once you've arrived at your destination and positioned for parking, you're ready for the shutdown checklist. Keep in mind that sometimes the aircraft shutdown and securing checklists are combined into one, so it's easy to get out of a checklist mode and switch to performing tasks from memory once the engine is shut down. No matter how familiar the tasks

Photo by Susan Parson

are, discipline yourself to keep the checklist in hand all the way to the last item. Forgetting to turn off the master switch or install a gust lock can have damaging effects to the aircraft, not to mention it can flat out ruin the day for the next pilot.

Finally, you may find that some manufacturer's checklists don't always include everything that might need attention during shutdown. On the Garmin G-1000 for example, some pilots may forget to switch off the standby power switch, which could deplete the unit's internal battery. There's also the example we used earlier on checking 121.5 for silence before shutdown. I have seen it on some, but certainly not all, checklists. Checking the frequency is a good way to cover yourself as well as report any other signals you might pick up. And while you might think earthquake-inducing landings that trigger an ELT are only a rookie pilot mistake, think again. It's a more common occurrence than it may seem. Incidental passenger contact with a remote activation switch may be yet another good reason to check for an ELT signal.

Parallel Parking All Over Again

Positioning and parking your aircraft may wind up being a low priority during flight training, but failing to learn the proper methods early on can come back to bite you. It's also a part of what you'll be tested on for a checkride. Here are a few things to consider that can help fine tune your parking and ramp maneuvering skills.

The first is obvious but critical: be mindful of other aircraft, vehicles, and people moving on the ramp. Spinning props aren't always easy to spot, so look for a flashing beacon light to alert of you of potential movement. Follow visual cues when available, like yellow taxi lines, tie down markers, and parking "T"s, which should help you steer safely clear of other wings and things.

Another good practice is to keep your hand on the throttle during any ramp maneuvering. That way it will be well-positioned to pull the mixture in case someone approaches unexpectedly near the propeller. It's also good to check the ground around and behind the propeller when giving it gas to make a tight turn — you don't want to blow rocks or debris toward another aircraft or have a fellow pilot take a bath in prop wash. Not fun.

When given a choice, park your aircraft into the wind. Note that on a parking "T," your main tires should be over the top part of the T and the tail directly over the lower part. If a tow bar is needed, be mindful of turn limits and ask for assistance if someone is available to help push while you steer. For those lucky enough to have covered parking, it's best to recruit the help of wing walkers when maneuvering in or out of a hangar.

Parking on your home turf is probably a breeze, but if you're unfamiliar with where or how to park at a particular FBO, give them a call on the radio. They'll be more than willing to help. It might also help you to do some research ahead of your flight on the FBO you plan to use; some might use a discreet UNICOM frequency for parking and services.

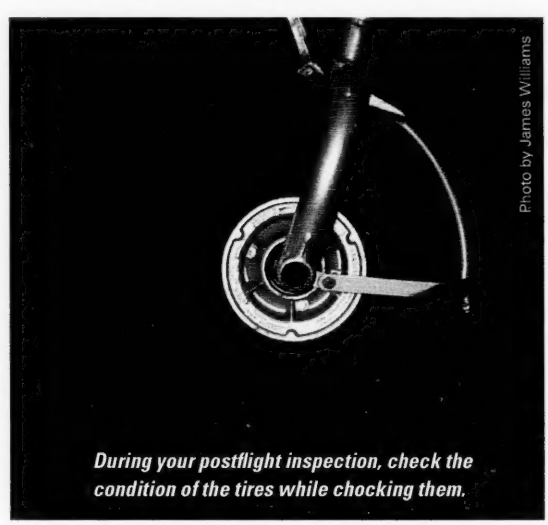
It's All About the Birds and the Bees

While no one expects you to perform a full preflight-style inspection after landing, a thorough once-over of the airplane is highly recommended.

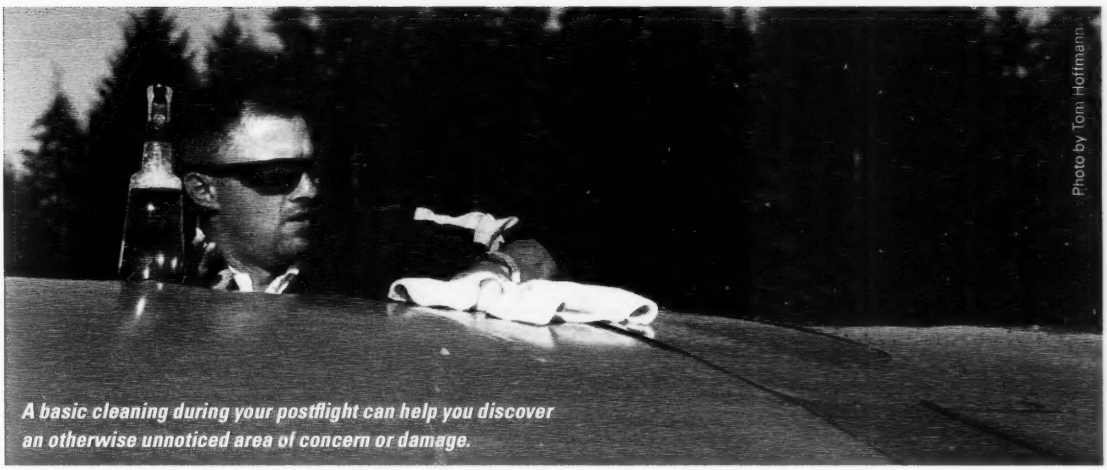
"Two things I always tell my students are to check for signs of obvious damage and unexplained fluids," says Jeffrey Smith, a certificated flight instructor and currently the manager of the Certification and Training branch in the FAA's General Aviation and Commercial Division. "A small trace of oil on a constant speed propeller hub may not be something that warrants grounding an aircraft during preflight, but be sure to check it again when the flight is over. A good postflight inspection will allow you to measure that delta and bring any areas of concern that may have been exacerbated during flight to a mechanic's attention," says Smith.

During your postflight inspection, check the condition of the tires while chocking them. Inspect the flight controls for any abnormalities or damage. Check the aircraft skin for any stains, tears, or punctures. It's also a good time to install any pitot tube covers, cowl plugs, and any other equipment your aircraft uses to prevent critters of the feathered variety from roosting in any of its warm and cozy crevices.

"I recommend closing any air vents as well to prevent insects from finding their way inside," says Smith.



During your postflight inspection, check the condition of the tires while chocking them.



A basic cleaning during your postflight can help you discover an otherwise unnoticed area of concern or damage.

He speaks from experience. Smith can recount a harrowing flight with a student during which a hornet's nest dislodged from inside an air vent and fell in his lap — on takeoff mind you. Needless to say the hornets were not amused and caused a dangerous level of panic for both occupants. Thanks to cool heads and a makeshift flyswatter fashioned out of their sectional chart, safety prevailed.

If you do notice something peculiar on your postflight inspection, be sure to call attention to it. Flight school and flying club aircraft usually have "squawk" books where you can write up any discrepancies. Be specific, and by all means, don't be afraid to write something up that doesn't sound or feel right to you.

Cleanliness is Next to ... Airworthiness

Whether it's your own aircraft, or a rental, take some time during the postflight to clean the aircraft. It may seem cosmetic and somewhat superficial to safety, but cleaning can improve cabin visibility and may even help you discover an otherwise unnoticed area of concern or damage. Besides, fresh bugs are much easier to remove than those that are baked and caked on. It's also considerate to tidy up any loose articles, like checklists and maps, and secure the seatbelts neatly. If there's a reflective sun shade, take the time to install it.

And, just like you hear in the typical airline debarkation announcement, "be sure to check your surrounding area for any personal belongings." This is particularly important when you're in a rental. I, for one, have endured the scornful squinting eyes of my wife after leaving a brand new pair of Fossil shades on top of the instrument panel of a rental, never to be seen again. I recommend a quick scan under, behind, and in between the seats. Besides, any wayward quarters might come in handy for an ice cold post-flight soda!

Finally, before you leave the aircraft, ensure the windows are closed and the doors are latched and locked.

Wrapping it Up

Much like this magazine's Postflight department helps tie up each issue's main focus areas and explains their importance to readers in their own personal aviation endeavors, a good postflight briefing can provide similar benefits. If it's an instructional flight, be attentive and open to any constructive criticism you might receive. Most importantly, ask questions. Your instructor may not remember every part of the flight so press him or her on anything that you didn't understand or need repeated. If you're solo, you might draw some curious stares if you start debriefing yourself by the water cooler. Instead, do a mental review of the flight and seek an expert's opinion on anything you weren't quite sure of. If there's any one constant thing in aviation, it's change. So don't be afraid to speak up and ask if you have questions. Finally, be specific in the remarks section of your logbook for your flight. It's helpful to be able to look back and gauge your progress with a certain task or phase of flight challenge.

Oh, I almost forgot — one last "gotcha" item; did you close your flight plan? The folks at 1-800-WX-BRIEF will be glad to know you're safe and sound.

Tom Hoffmann is the managing editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

Airplane Flying Handbook, Chapter 2 – Ground Operations
http://go.usa.gov/5rGQ

SUSAN PARSON

Keeping Current

It's an aviation cliché that if you are a student pilot working toward your first pilot certificate, your aeronautical knowledge and flight proficiency are likely more up-to-date than those of longer term certificated pilots. It's painfully easy to lose track of updates once you leave the training environment. Continuing pilot education and training programs such as the FAA's WINGS Pilot Proficiency Program, and rules requiring a flight review, are intended to keep the knowledge gap from growing too vast. But aviation is highly dynamic and lots of things can change in a very short period of time.

One way you stay current is to become a regular visitor to the FAA Airman Testing Standards Branch (AFS-630) web page or, better yet, become a subscriber to AFS-630's updates page.

Meet the Testing Team

The FAA Flight Standards Service's Regulatory Support Division promotes safety through the development, implementation, analysis, and distribution of technical information.

The Airman Testing Standards Branch, AFS-630, plans, develops, and maintains materials related to airman certification training and testing. These include airman knowledge and skill tests, computer testing supplements, knowledge test guides, practical test standards, training handbooks, and the computer testing sites. The AFS-630 pages on FAA.gov also include links to frequently asked questions and answers, as well as links to submit comments and questions.

These features — all recent enhancements to the AFS-630 page — are intended to improve transparency, communication, and engagement with FAA stakeholders. "We welcome reports, suggestions, comments, and questions concerning our products," notes AFS-630 branch manager Bob Newell. "We are working every day to improve the overall airman certification system, and to improve the service we provide."

Airman Certification Standards

To achieve these goals, AFS-630 (along with other parts of AFS-600) is closely involved in the ongoing Airman Certification Standards (ACS) development work led by an AOPA-chaired aviation industry group that includes associations, universities, training providers, and professional associations.

The goal is to integrate knowledge and risk management for each skill task in the existing FAA Practical Test Standards (PTS) into a single Airman Certification Standards (ACS) document. As you may know, the PTS clearly defines acceptable performance standards for the flight proficiency (skills) part of the airman certification process. The absence of a similar set of standards for aeronautical knowledge has created a number of issues and "disconnects" familiar to anyone who has ever taken an FAA knowledge test. Both industry and the FAA believe this approach will significantly improve testing, training, and safety by clearly mapping aeronautical knowledge and risk management to the flight proficiency skills defined in the PTS.

Importantly — especially for those just starting out in aviation — everyone involved in the project believes this approach will also decrease training time and costs by focusing more closely on what an applicant really needs to know in order to earn a specific airman certificate or rating. As noted by AFS-600 division manager Van Kerns, "We can greatly improve airman training and testing through an integrated, holistic system that clearly aligns testing with certification standards and guidance."

One way to stay current in terms of airman testing and training information is to subscribe to the FAA Airman Testing Standards Branch (AFS-630) web page.

Adds AFS-630 branch manager Bob Newell, "We are very excited to work with our FAA and aviation industry colleagues on this project."

Stay tuned for updates on the ACS project — and please take a moment now to subscribe to the AFS-630 updates.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

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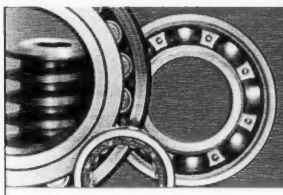


Nuts, Bolts, and Electrons

SABRINA WOODS

Rental Aircraft 101

In the May/June 2014 edition of *FAA Safety Briefing*, we focused quite a bit on aircraft certification and the care and feeding that goes into keeping your aircraft airworthy. The articles in that edition were written primarily for aircraft owners, but the information also applies to the wide, *wide* world of aircraft rentals.

Those who do not own an aircraft typically have to rely on a local flight school or fixed base operator (FBO) to fulfill their flying needs. If you are a brand new student of flight, rental may be almost inevitable.

When learning to fly, you probably took the utmost care in selecting a training program and certificated flight instructor (CFI) that was conducive to your needs, location, and budget. If you *haven't* started yet and need to know more about making either of those selections, then this edition of *FAA Safety Briefing* is definitely for you. But did you apply that same care to selecting your aircraft? Or did you just leave that up to your instructor?

Hmmm.

While your instructor will likely take care of the details while you are under his or her guidance, some day you will eventually be out on your own. It's never too early to plan, so you might want to take note of a few things that can enhance your flying experience when it comes to selecting a safe and airworthy rental aircraft.

Much like when meeting a new person, first impressions can go a long way. The aircraft should look reasonably clean and well-maintained, with no major signs of corrosion or structural damage. Keep in mind, though, that beauty is sometimes only skin deep. Even though an aircraft may look pristine on the outside, it could be hiding some major flaws on the inside. In order to get a better understanding of what nasties might be lurking beneath the surface, you'll want to review the maintenance logs.

A side note here: if a rental agency or FBO is unwilling to disclose its maintenance logs to you, take it as a warning to walk away. As an operator, you are responsible for the airworthiness of that aircraft while it is under your control. So you have a right — in fact, you have an *obligation* — to do a thorough pre-flight before taking to the skies.

Look for completed annual and hourly inspections. Make sure the pertinent airworthiness directives and safety bulletins have been addressed, and that all applicable placards and manuals are located in the aircraft. Closely scrutinize the information in the logs to determine if major maintenance or alterations have been done. If so, make sure you understand the ramifications of that maintenance. If you have questions about *anything*, talk to the attending maintenance technician before you take the aircraft.

Once you are ready to crank 'er up and continue with your pre-flight, make sure that everything on the aircraft works as advertised. For anything that does not work, you'll need to ensure compliance with regulations — 14 CFR 91.213, to be precise. Even if legal, think hard about even minor squawks. Squealing radios or fuzzy windscreens can become a safety of flight issue.

Last, but certainly not least, it is also a *very* good idea to carefully review the insurance policy on the aircraft so that you are aware of what is to be expected from the rental agency, and from you in case a mishap occurs. This is particularly important if you are taking passengers up in the aircraft. The verbiage in the policy can change based on how many occupants are onboard, and you don't want to be caught unaware. Though not a requirement, it is also an excellent idea to have your own personal renter's insurance.

Once airborne, take note of anything that seems out of place — a rough engine, avionics squeals or feedback, unusual knocking or banging, and anything out of the ordinary. Be prepared to brief the maintenance crew and the FBO shortly after landing. If all goes well with the flight, consider noting what you really enjoyed about the aircraft for the future. Once you find a "keeper," you can build a relationship with that rental and continue to seek it out for use. This is a great way to establish your own baseline for what is normal and what is not.

I've written in a previous article about *caveat emptor* — let the buyer beware — but the concept absolutely applies to renters as well. Learning to fly can be equal parts exhilarating and overwhelming. Since the last thing you need to be worried about is whether your aircraft is up to the task, your first priority is to ensure that it is.

Sabrina Woods is an assistant editor for FAA Safety Briefing. *She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.*

TOM HOFFMANN

Experience Matters – Or Does it?

The Dangers of Equating Safety with Logbook Size

"Kitchen help needed. Must have food service experience."

That's how the help wanted sign read in the window of an on-campus pizza joint during my junior year at college. Strapped for some extra cash and without a whole lot of viable employment options, I decided to inquire within. Although I *clearly* lacked the restaurant skills they were seeking, I thought I could pass off the several meatloaf and chili experiments so thoughtfully provided in my "Surviving College" handbook as proof of my culinary capability. Thankfully, no samples were required but they liked my enthusiasm and eagerness to learn, so I got the job.

Before long I was tossing large globs of pizza dough three feet in the air with the best of them. It was a blast — until my first night shift. The bar was crawling with hundreds of hungry (and thirsty) students ordering food at all hours of the night. I noticed some of my seemingly cool-headed mentors and coworkers, who so skillfully schooled me in the ways of the 'za, got frazzled and disorganized during periods of chaos. Ticket times for food mounted. Customers got angry. The servers were losing patience, not to mention tips. It's not that my fellow cooks didn't know what to do; they just didn't perform so well under pressure. By staying organized and anticipating order demand, I was able to keep pace with the orders and keep the kitchen afloat, despite my newbie status.

So what does a pizza kitchen have to do with aviation? In the aviation world, it's quite common to equate experience with skill. The more hours you have, the safer you'll be in the air, right? Total myth. There's no debating that experience is a valuable asset when it comes to flying. Good pilots learn from their experiences and, no doubt, the more you fly, the more of those types of learning opportunities you'll have. The question, though, is whether you are pressing yourself to learn from those experiences. My pizza-slinging coworkers would swear they were the best cooks in town, yet they always found themselves backed up without ever taking the time to develop a more proactive plan.

Another point to keep in mind about flying skills is that they are highly perishable; they can stagnate or erode over time if they're not maintained. A 10,000 hour logbook that hasn't seen the light of day in two years is a lot like that tomato you left in the refrigerator a *really* long time ago. While technically it's still a tomato, you'd be pretty hard-pressed to touch it, let alone eat it. (Not that a skilled pizza chef like myself would ever do such a thing!)

The false sense of security a hefty logbook provides can be dangerous. A cursory scan through NTSB accident reports will routinely reveal four or even five digit numbers in the flight time column that too often correlate with a chain of head-scratching pilot errors in the narrative. Here's a good example: in 2001, the pilot of a reduced-scale WWII Hawker Hurricane encountered engine problems while in the pattern at a Washington state airport. According to eyewitnesses, the aircraft lost power while on approach over the runway, continued north over the runway, and then pulled up and attempted a 180 degree turn back towards the grass strip. The aircraft returned to the ground nose first with no survivors. Investigators determined that 1,500 feet of open field lay just north of the runway area where the pilot attempted the "impossible turn." The high level of diphenhydramine found when preparing the toxicology report likely contributed to his poor decision. Total flight time: 2,500 hours.

Flying skills are highly perishable; they can stagnate or erode over time if not maintained.

"I measure a good pilot by the quality of the aeronautical decision making, not by the number of hours he or she has racked up," says Spokane-based FAASTeam Program Manager Minard Thompson, who was acquainted with the Hawker Hurricane pilot. "The more opportunities you have for making and demonstrating good ADM in flight ... that's how you become a better pilot."

In the end, safe flight operations aren't a result of how many hours, ratings, or certificates you've earned during your career. Just as important as the knowledge and experience you have is how you apply them when it matters — that is, on every single flight. Safe flying.

Tom Hoffmann is associate editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

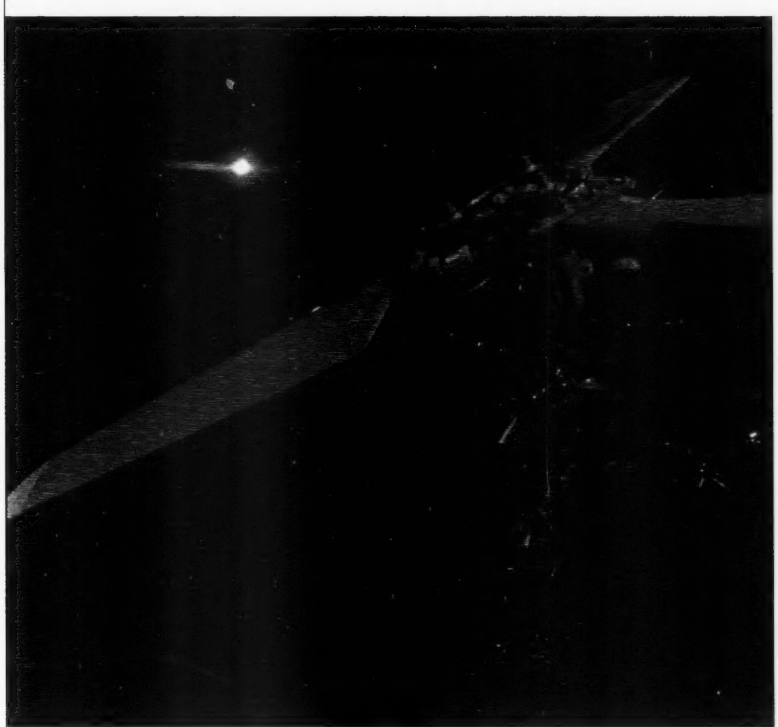
RORY RIEGER

Complacency: The Grim Reaper of Aviation

No treat here: Fiscal Year 2013 saw 37 fatal helicopter accidents in the United States — the worst year for fatal helicopter accidents since 2004. That grisly statistic is downright frightening because many accidents are preventable. As is typical of aviation mishaps, many of the helicopter crashes that happened this past year involved qualified, experienced pilots flying properly operating machines during daylight and in good weather. In cases such as these, pilot complacency becomes the prime suspect.

While rotorcraft operations often require a heightened sense of vigilance and caution, helicopter pilots still can become complacent. It's spooky, but the better a pilot is, the more likely he or she might fall victim to complacency. Complacency, built from a pilot's own experience and skill, arises like a Frankenstein to attack the operator. And complacency is rarely as obvious as a black cat crossing your flight path. Rather, it lurks in the shadows not being unmasked until after a catastrophe occurs.

Pilots must recognize the false sense of security that is complacency and not fall under its spell. Current training, staying focused, and common sense are the silver bullets in this struggle. So dust the cobwebs off of your emergency procedures manual and read it carefully. Don't fly your helicopter when you know bad weather is approaching unless you have the proper equipment and training. Follow the rotorcraft flight manual's normal procedures and file a flight plan. Conduct a thorough preflight briefing among all flight participants and follow the agreed-upon flight details. In a nutshell, proper planning is akin to the torch and execution the pitchfork for defeating the complacency monster.



Keep in mind, complacency does not do its "haunting" alone. Among its ghoulish friends are weather, mechanical malfunctions, and, of course, those immortal laws of physics. Weather might not always be biting you in the neck and proper maintenance can drive a wooden stake into the heart of mechanical failure, but Newton's favorite law, gravity, never takes a holiday.

Gravity doesn't take into consideration if pilots have thousands of flight hours. Gravity doesn't care if your helicopter is brand new and sparkles under a full moon. Gravity isn't concerned with your need to get home before sunup or if your family will bemoan your untimely passing. Quite simply, gravity doesn't play favorites. When that law of physics mixes with complacency, the result is a deadly witches' brew.

No pilot wants to leave his or her last flight wrapped in a sheet like a mummy, so this Halloween season (and beyond) polish a coffin and chisel a tombstone for complacency and leave the gruesome events to the haunted houses. Your little pumpkins will appreciate your toil and trouble.

Rory L. Rieger is an aerospace certification engineer for the FAA Rotorcraft Directorate. He has served as a fixed- and rotary-wing pilot for the U.S. Navy and Navy Reserve for 28 years. His career has included duty in more than 20 combat operations.

Flight Forum

Good Stuff!

Great articles in this month's (May/June 2014) issue! You covered a lot of stuff and linked to sites and documents that are still great sources for pilots. The information was nice, straightforward, and explained your processes. It is always good to get info to use and/or pass along. This is the kind of stuff that mechanics, owners, and pilots need to hear and keep us on the same page.

— Marv

We appreciate the feedback and are glad you are helping us pass the "good stuff" along. It is things like that that go a long way in ensuring a positive and safe general aviation culture.

New Purchase

I am an aircraft mechanic and read your publication all the time and love it. I am currently in negotiations for a 172A and hoping to get back into flying. I have a small hangar waiting if the deal goes through. Next week we plan on going for a flight, then a pre-buy inspection. I plan on doing the inspection myself but am looking for someone who has intimate knowledge of the older fastback style 172s as they tend to have corrosion problems. What do you recommend for finding someone who might have the aircraft specific knowledge I am looking for?

— TJ

Thanks for the note, and congratulations on your forthcoming purchase! It sounds like you have a great plan in place, and we hope the airplane turns out to be as clean as you hope it will be. Regarding maintenance ideas, it is always a great idea to ask around at the nearest FBO to you and see who aircraft owners there recommend. Just make sure they specialize in the 172A so you can be sure the individual will meet your needs.

Misplaced Michigan

As an airworthiness inspector, seeing the content of the FAA Safety Briefing focus on maintenance issues was a welcome sight. That is until I read the article "Growing Old Gracefully" (May/June 2014 edition). On page nine, a United States map depicts areas of corrosion however the state of Michigan has disappeared. This may be not a big deal to some people, but I am Michigan-born and raised and proud of my state, and I was not happy to see it left off the map.

— Bob

We apologize for misplacing the state of Michigan on the corrosion area graphic on page 9. The map graphic was digitized from the hand-drawn map in Advisory Circular 43-4A, Corrosion Control for Aircraft, which is also missing Michigan amongst other hand-drawn anomalies. We promise not to "fly over" any more states on future maps.

I'm a Fan!

I really enjoy your magazine. The graphics are spectacular and the articles stuffed with useful information. I am sure it is a result of a lot of work. I recognize that and want you to know I think you do great work. Keep it up.

— Rick

Hey, thanks for the feedback! We try very hard and are very proud of our product. It is encouraging to hear that our readers feel we are producing quality work. Thanks again and happy reading!

Just to Clarify...

In the "What Pilots Want to Know" section of the "ADS-B Ins and Out" article in the July/August 2014 edition of FAA Safety Briefing, *it was indicated that the effective date for the ADS-B Out mandate is January 1, 2010. While this is correct, please note that the compliance date is effective after January 1, 2020.*

In addition, there were a few statements about Traffic Information Services-Broadcast (TIS-B) capabilities for ADS-B In only operations on page 31 of the article that we'd like to clarify. The broadcast of TIS-B traffic information requires a signal from an ADS-B Out equipped aircraft. TIS-B information can be relayed to a receive-only device like the Garmin GDL 39, but only if your aircraft or another nearby aircraft is transmitting ADS-B data. Use of an ADS-B In device by itself should only be regarded as a supplemental tool for enhanced traffic awareness. It should never be assumed that such a device can provide complete information about surrounding traffic.

Let us hear from you — comments, suggestions, and questions: email SafetyBriefing@faa.gov or use a smartphone QR reader to go "VFR-direct" to our mailbox.

SUSAN PARSON

It Takes Two!

As John Duncan notes in his Jumpseat column, a pilot certificate at any level — from student to ATP — is primarily a license to learn more about the vast world of aviation. There is indeed a great deal to learn. If that seems intimidating, I get it. That was an issue for me as well. But since teaching is my family profession, I had the benefit of a lifetime's worth of ideas on what constitutes effective teaching and learning.

Perhaps the most fundamental of these is the idea that effective learning is not a spectator sport. On the contrary, one of the most important elements in education is a learner who is engaged; one who is an active participant in his or her own learning process and experience. That does not require, or even imply, academic anarchy. As an instructor friend likes to say, "you don't know what you don't know." Rather, learner engagement — especially for adults —implies a person who regards learning as a participatory process and acts accordingly.

Show Up

It has been said that 90 percent of success in life results from the simple act of "showing up." In flight training, showing up means being physically present for regularly scheduled ground and flight lessons. Flight training is expensive, but frequent lessons are more cost-effective. Especially in the earliest stages, when everything is new and easily forgotten, frequent lessons are key to effective learning and retention.

In addition, showing up means being mentally alert, and prepared. If you are in ground school, there's no substitute for reading the assigned material before you take your seat in the classroom. If there are practice exercises (e.g., performance calculations), do enough to either master the material or pinpoint the knowledge gaps you can ask about in class. For flight training, think of your lesson components as a sandwich. The flying part is the meat, and pre- and post-lesson preparation make up the slices of bread that keep the meat in place. Before the lesson, mentally review the maneuvers and procedures you learned last time, and familiarize yourself with the activities slated for this one. After the lesson, mentally replay what happened.

Pay Attention

I'm not a parent, but I sometimes joke that the flight starts with a person who is completely dependent on him or her for survival. Again like the parent, the instructor's task is to develop skills and attitudes the student needs to safely operate alone. The instructor clearly bears a huge responsibility, but so does the student. The actively engaged flight student needs to pay attention — watch, listen, and work to put perceptions from each training experience into a broader context. Never hesitate to ask questions. Say what you see, what you hear, and what you *think* it means. That gives the instructor a chance to validate the accurate perceptions and correct any misperceptions at the earliest opportunity.

To encourage more active participation by the flight training student, the FAA *Aviation Instructor's Handook* suggests a post-flight debriefing technique called the "collaborative critique." In the traditional assessment we all remember from grade school, the student sits quietly while the instructor marches through a laundry list of quibbles about the student's performance. In the collaborative critique, however, the instructor guides the student through a four-step process to *replay*, *reconstruct*, *reflect*, and *redirect* the flight experience. If your instructor doesn't use this technique, you might want to consider suggesting it.

Another way to develop judgment is to train like you plan to fly. Learning to fly has a few things in common with learning to play a musical instrument. The maneuvers you learn — starting with the four fundamentals of straight and level flight, climbs, turns, descents — are like notes and scales. Knowing how to fly the maneuvers according to the requirements of the Practical Test Standards, or PTS, is very important. But operating safely in the real world requires arranging the basic maneuvers to accomplish the trip or mission you intend to fly, and doing so in the context of real world pressures and constraints. For example, plan as if it were for a family vacation that you might really want to take in an airplane. The importance of comprehensive flight planning becomes very real when you have to put it in specific terms: how many people and how many bags can be carried, and how they have to be loaded.

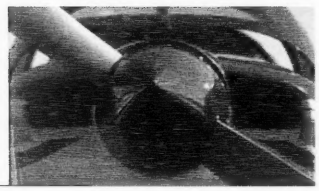
Have Fun!

Flying is incredibly fun. Notwithstanding the dedication and work it requires, flight training should also be fun. Here's hoping that "fun" is threaded through every part of your lifelong aviation learning experience.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

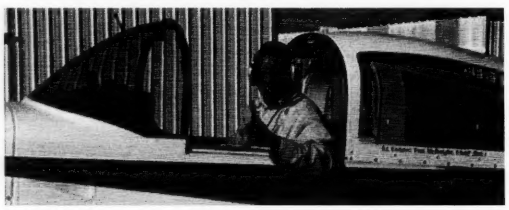
PAUL CIANCIOLO

FAA Faces



Tom McKnight

Aviation Safety Inspector, Commercial Operations Branch



Even after 6,000 hours in nearly 80 different military and civilian aircraft, Tom McKnight is still in student mode. Most recently, he completed his proficiency check ride in a light-sport gyroplane.

"Learning to pilot a gyroplane, which is a blast to fly, really put me back into the student pilot role since all my time has been in fixed-wing aircraft," said McKnight. "I first soloed 42 years ago, so I was a bit apprehensive about learning to fly a 'new' machine at my age."

Even with all his experience, Tom still sought out the most experienced gyroplane instructor he could find. That's good advice for any student pilot — choose your instructor wisely. Tom also researched the different gyroplane models to find the right one for his training needs, and he attended a three-day gyroplane certified flight training course.

"I did my homework and read everything I could find on making the transition from fixed-wing to gyroplanes," Tom noted.

Although Tom was the student in this case, he holds an airline transport pilot certificate and is a FAA gold seal flight instructor. As both an instructor and a lifelong "student" pilot, Tom has a clear picture of qualities that a good aviation student should have. Specifically, Tom expects a student to:

1. Always be prepared and punctual;
2. Ask a lot of questions;
3. Have discipline to stay within the limitations specified in their logbook;
4. Stay motivated, so as not to drift away during learning plateau periods; and
5. Have a good sense of humor.

Tom advises pilots to always maintain the student pilot's "here to learn" attitude, and to remember that there is always something new to master in aviation. He notes that this approach to life also helps him in his current FAA role in the Flight Standards Service's General Aviation and Commercial Division.

"I work closely with the policy side of GA operations, so my role nowadays is to help my fellow inspectors in the field do their jobs more effectively. It's a challenge to ensure that the policies and guidance we provide are actually helping rather than hindering our GA safety initiatives."

Tom works specifically on all issues related to NextGen and new technologies as they apply to GA operations. He is on the team preparing a proposed rulemaking for enhanced flight vision systems (EFVS). The idea is to expand the operational flexibility of aircraft equipped with EFVS to allow use of EFVS right down to touchdown and roll out under certain conditions. While supporting the General Aviation Joint Steering Committee (GAJSC) Loss of Control Working Group on GA safety enhancements, Tom also prepared new guidance on stabilized approach criteria for GA aircraft to help decrease loss-of-control accidents in the traffic pattern. In addition, Tom worked on the policy that streamlines the installation process for angle of attack indicators.

"I enjoy working with all the leading edge technology available for GA, and helping facilitate its safe integration into aircraft operations."

Tom has always had a passion for technology. His childhood heroes were astronauts Alan Shepard, Gus Grissom, and John Glenn.

"Knowing what it takes to be an astronaut is why I was determined early on to become an engineer and a pilot."

With that goal in mind, Tom studied aeronautical engineering at the University of Maryland. While in the Air Force, he started flight instructing at various military flying clubs and decided that after retirement he wanted to stay in GA. Tom took a job as chairman and associate professor in the Airway Science Department at Delaware State University to prepare students for careers in aviation management and professional pilots. He was also in charge of a part 141 flight school, where he managed nine GA aircraft. After careers as a military aviator and aviation professor, Tom decided to join the FAA.

When Tom is not "hopping" around in a gyroplane, you just might spot him in the vicinity of his local FBO, where he bases his personal Grumman AA5B *Tiger*.

When asked to provide his best advice for student pilots, Tom didn't hesitate. "Regardless of what I am flying, I live by the pilot's mantra to "aviate, navigate, and communicate — in that order. And always have fun!" For pilots of all ages and stages, that's good advice.

Paul Cianciolo is an assistant editor and the social media lead for FAA Safety Briefing. He is a U.S. Air Force veteran, and a rated aircrew member and search and rescue team leader with the Civil Air Patrol.

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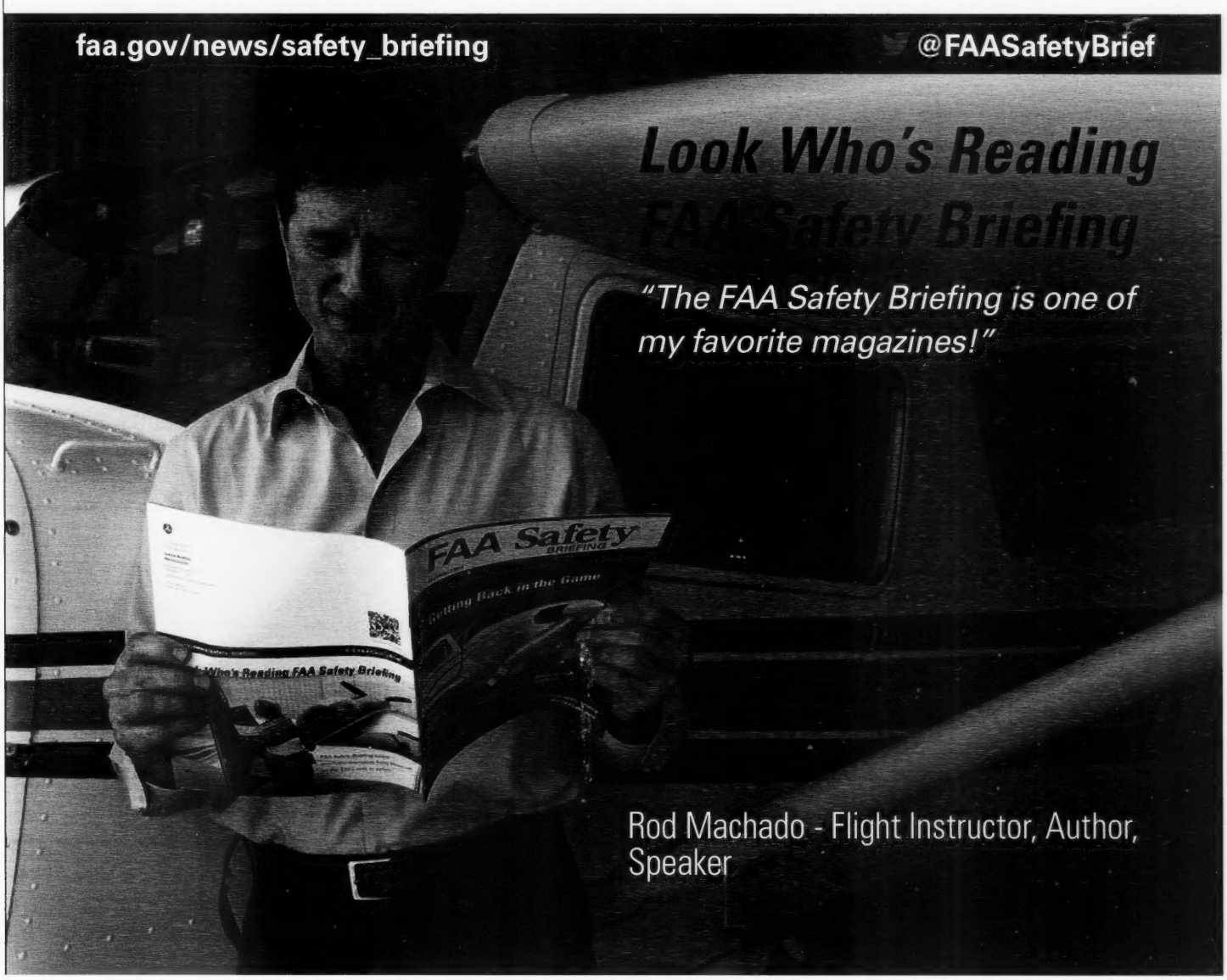
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